

Civil Aviation Organization Private Pilot Written Exam

Jan 2017



IN THE NAME OF GOD

The second edition of this book shares new upcoming issues and questions regarding nowadays ongoing aviation knowledge.

By developing aviation industry, continuously control for updating this question bank is highly in need of attention.

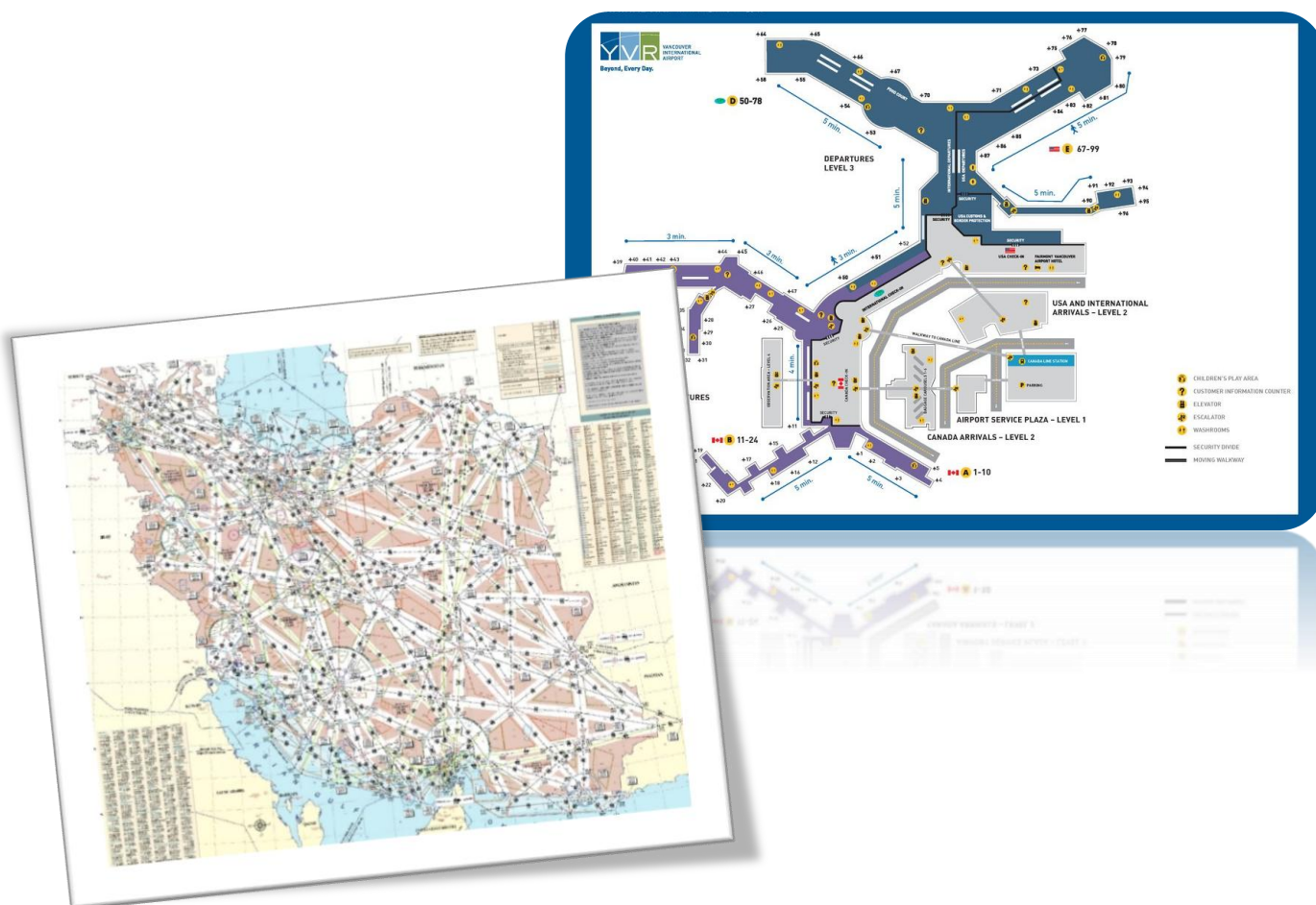
Please do not hesitate to contact us, if there is any suggestion for implementing in 3rd edition.

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Aeronautical Information Publication



► IRAN AIP AIRAC 3 - 2016

1- Where can you find the difference between ICAO standards and Iran regulation and procedure?

- A) GEN 2.5
- B) ENR 3
- C) GEN 1.7
- D) ENR 1

2- Which part of AIP contain conversion table?

- A) GEN 1
- B) GEN 2
- C) ENR 1
- D) AD 1

3- Which part of AIP contains measuring system?

- A) GEN 2
- B) ENR 1
- C) ENR2
- D) AD 1

4- Which one of following statement is correct "EP - TSC" is?

- A) EP - TSC is a registration mark.
- B) EP is a nationality mark.
- C) TSC is a registration mark.
- D) "B" and "C" are correct.

5- The location indicator "OICK" is for?

- A) Boroujerd
- B) Khoramabad
- C) Sanandaj
- D) Ilam

6- Where can we find the abbreviations used in AIS publication?

- A) GEN 2
- B) GEN 3
- C) ENR 1
- D) ENR 3.1

7- Which part of AIP contains the list of radio navigation aids?

- A) ENR 1
- B) ENR 4
- C) GEN 2.5
- D) GEN 3

8- Which part of AIP contains the radio navigation aids/systems?

- A) ENR 4
- B) ENR 1
- C) GEN 2.5
- D) GEN3

9- What is the accuracy of the location of navigational aids measured by GPS in Iran?

- A) ± 10 meters.
- B) ± 5 m.
- C) Within 8 meters.
- D) B, C are correct.

10- What is the purpose of Aghajari NDB?

- A) Aerodrome facility
- B) Enroute facility
- C) Off route navigation aid
- D) A and B are correct

11- What is the purpose of "Ilam" DVOR/DME?

- A) Aerodrome facility.
- B) Enroute facility.
- C) Off route navigation aid.
- D) A and B are correct.

12- What is the accuracy of sunrise and sunset time published in AIP?

- A) Less than 3 min
- B) Less than 2 min
- C) 2 min
- D) 3 min

13- What is the color of regular AIP amendment cover sheet?

- A) Blue
- B) Pink
- C) Red
- D) Yellow

14- What is the color of AIRAC amendment cover sheet?

- A) Blue
- B) Pink
- C) Red
- D) Yellow

15- The color of AIP supplement paper is.....

- A) Blue
- B) Pink
- C) Red
- D) Yellow

16- Which temporary changes may be included in AIP supplement?

- A) 2 months
- B) 3 months and longer
- C) 1 month
- D) 4 month & longer

17- Which section of AIP contains the information of "NOTAM"?

- A) GEN 2
- B) ENR 3
- C) GEN 3
- D) ENR 1

18- The series of international NOTAM is.....

- A) A
- B) B
- C) C
- D) R

19- Which class of VDF antenna has bearing accuracy of $\pm 5^\circ$?

- A) A
- B) B
- C) C
- D) D

20- What is the series of domestic NOTAM?

- A) A
- B) B
- C) C
- D) S

21- NOTAM "A" contains information regarding operation of?

- A) International
- B) Domestic
- C) IFR
- D) All answers are correct

22- NOTAM "B" contain Information aboutoperation.

- A) International
- B) Domestic
- C) Snow
- D) All answers are correct

23- What is the validity of "SNOWTAM"?

- A) 12 hrs
- B) 30 min
- C) 24 hrs
- D) 60 min

24- The SNOWTAM contain information about:

- A) Slush
- B) Snow
- C) Compacted snow
- D) All answers are correct

25- What is the meaning of "NOTAM C"?

- A) Replace
- B) Cancel
- C) New
- D) Snow

26- What is the meaning of "NOTAM R"?

- A) Replace
- B) New
- C) Cancel
- D) Snow

27- What is the meaning of "NOTAM N"?

- A) Snow
- B) New
- C) Cancel
- D) Replace

28- In Which Iranian airspace VFR flight is authorized to operate?

- A) B, C, D
- B) B, D
- C) D, E
- D) C, D

29- VFR flight shall not operate at night within Tehran FIR but may be authorized to operate in aerodrome traffic zone by coordination with ATS authority:

- A) True
- B) False

30- What is the minimum height above obstacle for IFR flight within Tehran FIR, if minimum flight level has not been establish?

- A) 1000'
- B) 1500'
- C) 2000'
- D) 2500'

31- Which section of AIP contains information about "meteorological service"?

- A) GEN3
- B) ENR3
- C) GEN3.5
- D) ENR4

32- How many ATS MET reporting station are specified in Iran?

- A) 3
- B) 4
- C) 5
- D) 6

33- How many compulsory ATS MET reporting stations are specified in Iran?

- A) 3
- B) 4
- C) 5
- D) 6

34- In which part of AIP we can find the "on request" ATS MET reporting station?

- A) ENR 3
- B) GEN 2
- C) GEN 3.5
- D) ENR 4

35- The compulsory MET reporting station are:

- A) Zahedan, Esfahan, Uromiyeh
- B) Abadan, Birjand, Sabzevar
- C) Zahedan, Abadan, Esfahan
- D) Sabzevar, Abadan, Esfahan

36- METAR in Iran will be issued every:

- A) 1 hour
- B) 30 minute
- C) A or B
- D) None

37- Which part of AIP contain VFR/IFR rules?

- A) ENR 3
- B) ENR 1
- C) AD 1
- D) GEN 4

38- Where can we find the information about flight plan?

- A) ENR 1
- B) ENR 3
- C) GEN 3
- D) GEN 2

39- How many SAR (search and rescue station) are specified in Iran?

- A) 6
- B) 8
- C) 9
- D) 10

40- Which part of AIP contain the information about interception procedures?

- A) ENR 1
- B) ENR 3
- C) GEN 3
- D) GEN 2.5

41- Which part of AIP contains the information about "unlawful interference"?

- A) ENR 1
- B) ENR 3
- C) GEN 3
- D) GEN 1

42- Which part of AIP contains the information about "airspace classification"?

- A) ENR 3
- B) ENR 1
- C) GEN 3
- D) GEN 1

43- How many airspaces are classified in Iran?

- A) 4
- B) 3
- C) 5
- D) 2

44- How many controlled airspaces are classified in Iran?

- A) 3
- B) 2
- C) 1
- D) 4

45- How many uncontrolled airspace(s) is (are) classified in Iran?

- A) 1
- B) 2
- C) 3
- D) 4

46- Which class of airspace in Iran are specified control airspace?

- A) B, C, D
- B) A, B, C, D
- C) A, C, D
- D) A, D

47- Which class of airspace(s) in Iran specified as uncontrolled airspace(s)?

- A) F, G
- B) F
- C) G
- D) E, F, G

48- What is the class of airspace outside AIRWAY, TMA and CTR within TEHRAN FIR?

- A) A
- B) C
- C) D
- D) G

49- What is the classification of Bushehr CTR?

- A) A
- B) D
- C) D, A
- D) C

50- What is the classification of Tehran TMA up to FL200?

- A) C
- B) A
- C) A, C
- D) D

51- What is the classification of Tabriz CTR above FL200?

- A) C
- B) A
- C) A, C
- D) D

52- Which part of AIP contains information about altimeter setting procedure?

- A) ENR 1
- B) ENR 3
- C) GEN 3
- D) GEN 1

53- In which chart you can find transition altitude?

- A) Instrument approach
- B) SID
- C) STAR
- D) All answers are correct

54- The QNH value shall transmit in within Tehran FIR.

- A) hPa
- B) MB
- C) In.Hg
- D) PSI

55- The reported QNH in Iran is valid up to

- A) 25 km
- B) 25 NM
- C) 30 NM
- D) 30 km

56- Minimum for cruising level in IRAN shall be determined by adding to the highest obstacle:

- A) 1000 ft pressure error + 1500 ft terrain clearance.
- B) 1500 ft pressure error + 1500 ft terrain clearance.
- C) 1500 ft pressure error + 1000 ft terrain clearance.
- D) 1000 ft pressure error + 1000 ft terrain clearance.

57- Within which control airspace in IRAN the VFR flights are not authorized to fly?

- A) Airway.
- B) TMA
- C) TMA above FL200.
- D) TMA below FL200.

58- Night in IRAN is:

- A) 15 min after sunrise up to 15 min before sunset.
- B) 15 min before sunset up to 15 min before sunrise.
- C) 15 min after sunset up to 15 min before sunrise.
- D) 15 min before sunset up to 15 min after sunrise.

59- For which type of operation, the repetitive flight plan may be filed?

- A) Controlled flight.
- B) VFR flight.
- C) IFR flight.
- D) All type of operation.

60- What is minimum visibility for operation as a special VFR in Iran?

- A) 3000 m.
- B) 1500 m.
- C) 2000 m.
- D) 5 KM.

61- What is the minimum prescribed ground visibility for fixed wings aircraft which operates under VFR flight in IRAN?

- A) 5 KM.
- B) 8 KM.
- C) 2 KM.
- D) 1.5 KM.

62- The reported QNH is valid up to in Iran:

- A) CTR.
- B) 25 NM.
- C) 15 NM.
- D) TMA.

63- When the flight plan for IFR flight shall be suspended:

- A) 90 minutes in exceeds of estimated off - block time.
- B) 30 minutes in exceeds of estimated off - block time.
- C) 45 minutes in exceeds of estimated off - block time.
- D) 10 minutes in exceeds of estimated off - block time.

64- Which sections are available in IRAN AIP?

- A) NOTAM, AGA, AIP
- B) GEN, AIP, NOTAM
- C) ENR, GEN, AD
- D) NOTAM, AIP, AIC

65- "AIC":

- A) NOTAM
- B) AIP supplement
- C) Aeronautical Information Circulars
- D) AIP check list

66- How many sections are available in GEN?

- A) 4
- B) 5
- C) 7
- D) 6

67- GEN 2 includes:

- A) National regulations and requirements.
- B) List of location of indicator.
- C) Checklists and summaries.
- D) Aerodrome charges.

68- GEN 2 includes:

- A) National regulations and requirements.
- B) Measuring system.
- C) Services.
- D) ATS route

69- GEN 2 includes:

- A) National regulations and requirements.
- B) Public holydays.
- C) Charges for Aerodromes/Heliports and Air Navigation Services.
- D) Search and rescue service.

70- ENR 0 includes:

- A) Table of contents to part 2.
- B) General rules and procedures.
- C) Checklists and summaries.
- D) Instrument Flight Rules.

71- ENR 1 includes:

- A) Table of contents to part 2.
- B) General rules and procedures.
- C) Checklists and summaries.
- D) CTR information.

72- ENR 2 includes:

- A) Table of contents to part 2.
- B) General rules and procedures.
- C) FIR / UIR.
- D) Navigation warning Area.

73- ENR 3 includes:

- A) ATS Routes.
- B) General rules and procedures.
- C) ATS airspace.
- D) Radio navigation aids.

74- ENR 4 includes:

- A) Radio Navigation Aids/Systems.
- B) General rules and procedures.
- C) ATS airspace.
- D) Flight planning.

75- ENR 5 includes:

- A) Radio Navigation Aids/Systems.
- B) Navigation Warnings.
- C) ATS airspace.
- D) Airspace classification.

76- ENR 6 includes:

- A) Radio Navigation Aids/Systems.
- B) Navigation Warnings.
- C) En-route Charts.
- D) ATS route.

77- AD 0 includes:

- A) Table of contents to part 3.
- B) Tables and codes.
- C) Aerodromes/Heliports and Air Navigation Services.
- D) Aerodrome charts.

78- AD 1 includes:

- A) Table of contents to part 3.
- B) Tables and codes.
- C) Aerodromes/Heliports Introduction.
- D) Aerodrome charges.

79- AD 2 includes:

- A) Table of contents to part 3.
- B) Aerodromes.
- C) Heliports.
- D) Aerodrome charges.

80- AD 1.3 includes:

- A) Table of contents to part 3.
- B) Aerodromes.
- C) Index aerodromes and heliport.
- D) Aerodrome charts.

81- What is the lateral limit of ATS ROUTE G482 between TABRIZ and PAPOK?

- A) 10 NM.
- B) 15 NM.
- C) 20 NM.
- D) 25 NM.

82- What is the distance between SAVEH and EGVEL on ATS route L124?

- A) 119.2 NM.
- B) 78.3 NM.
- C) 19.2 NM.
- D) 20.5 NM.

83- What is entry and exit point on ATS route W4:

- A) DEHNAMAK and EGLUL.
- B) BUBUX and BOJNORD
- C) DEHNAMAK and BOJNORD.
- D) BUBUX and EGLUL

84- What is MOCA on ATS route T210:

- A) 12570 ft.
- B) 7100 ft.
- C) 10700 ft.
- D) 8100 ft.

85- On which ATS route(s) significant point "MAGRI" is (are) used?

- A) UR654.
- B) G208.
- C) W10.
- D) UL333.

86- When will the critical snow banks outside runway and taxiways be reported?

- A) Its height exceeds 20 cm.
- B) Its height exceeds 30 cm.
- C) Its height exceeds 60 cm.
- D) Its height exceeds 70 cm.

87- Which of the following meteorological watch office(s) can issue SIGMET?

- A) OIII.
- B) OIIE.
- C) OIFN.
- D) A and B are correct.

88- What is the aerodrome elevation of Mashhad international airport?

- A) 3423 ft.
- B) 3266 ft.
- C) 3254 ft.
- D) 3662 ft.

89- When NOTAM N is issued?

- A) For canceling previous NOTAM.
- B) For replacing previous NOTAM.
- C) For publishing new NOTAM.
- D) For special NOTAM

90- When SNOWTAM is issued?

- A) For canceling previous NOTAM.
- B) For snow, slush and icing condition in aerodrome.
- C) For publishing new NOTAM.
- D) For special NOTAM

91- What is the speed limitation for IFR flights within class "D" airspace below 10,000 ft AMSL?

- A) 250 KT IAS.
- B) 260 KT IAS.
- C) 250 KT TAS.
- D) 260 KT TAS.

92- Which type of separation is provided for VFR flights within class "C" airspace?

- A) IFR from VFR.
- B) VFR from IFR.
- C) IFR from SVFR.
- D) VFR from VFR.

93- Within which class of airspace in Tehran FIR, IFR and VFR flights receive flight information service only?

- A) A, C, D, G.
- B) A, C, D.
- C) G.
- D) F

94- In Iran, VFR flights are not authorized to fly within:

- A) B airspace.
- B) A airspace.
- C) G airspace.
- D) E airspace.

95- Which airspaces are not available in Iran?

- A) A, C, D, G.
- B) B, E, F.
- C) A, B, E, F.
- D) C, E, F.

96- What is the ATS route classification outside TMA in Iran?

- A) A, C, D, G.
- B) B, E, F.
- C) D, A
- D) G.

97- Only one revision is acceptable for IFR flights within:

- A) 60 minute, before EOBT.
- B) 15 minute, after EOBT.
- C) 60 minute, after EOBT.
- D) 30 minute, after EOBT.

98- Issued start up clearance by ATC unit is valid up to ----- from the time of startup clearance.

- A) 10 to 15 minutes.
- B) 20 minutes.
- C) 15 minutes.
- D) 10 minutes.

99- If the pilot is not able to make start up by first clearance:

- A) May request another one during the validity of the flight plan.
- B) Can make two more requests.
- C) Is not allowing to request startup.
- D) Shall cancel the flight plan.

100- According to Iran AIP, flight plan is required for:

- A) VFR flight.
- B) IFR flight.
- C) IFR flight only.
- D) A & B.

101- Which Annex to the Chicago Convention covers dangerous goods carried in aircraft?

- A) ANNEX 15.
- B) ANNEX 16.
- C) ANNEX 17.
- D) ANNEX 18.

102- The ICAO document concerning the provision of the AIS is Annex ____ to the Convention on Civil Aviation.

- A) 9
- B) 15
- C) 7
- D) 16

103- Annex 17 to the Convention of Chicago covers:

- A) Security
- B) Operation of aircraft
- C) Facilitations
- D) Aerodromes

104- ICAO personnel licensing rules and regulations are contained in Annex ____ to the Chicago Convention.

- A) 17
- B) 9
- C) 14
- D) 1

105- A detailed description of the visual ground aids can be found in ICAO:

- A) Annex 14
- B) Annex 12
- C) Annex 3
- D) Annex 9

106- How is night defined in Iran AIP?

- A) The hours of darkness.
- B) From 30 minutes after sunset until 30 minutes after sunrise.
- C) The hours when the sun is below the horizon.
- D) The 15 minutes after sunset until 15 minutes before sunrise.

107- “A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation” is the definition of:

- A) NOTAM.
- B) Aeronautical Information Circular (AIC).
- C) Aeronautical Information Publication (AIP).
- D) Aeronautical Information Regulation and Control (AIRAC).

108- AIRAC is stand for:

- A) Aviation Information Regulation and Control.
- B) Aeronautical Information Regulation and Control.
- C) Aeronautical Information Rules and Control.
- D) Aviation Information Rules and Control.

109- What is AIRAC?

- A) A package of information including AIP, NOTAMS route briefings.
- B) A telecommunicated message of operational significance which has short notice.
- C) The main body of knowledge concerning a national aviation system.
- D) A means of amending operationally significant permanent information.

110- The information concerning charges for aerodromes/heliports and Air Navigation Services are on the following part of the AIP:

- A) AD
- B) GEN
- C) FAL
- D) RAC

111- In which section of AIP are contained information elements relating to prohibited, restricted and dangerous areas?

- A) GEN
- B) ENR
- C) AGA
- D) MAP

112- Which part is AIP Part 2?

- A) GEN
- B) ENR
- C) AGA
- D) AD

113- In which section of AIP are contained information elements relating to areas and/or routes for which meteorological service is provided?

- A) COM
- B) GEN
- C) MET
- D) RAC

114- The SIGMET service in the AIP is in the following part:

- A) GEN
- B) AGA
- C) ENR
- D) MET

115- The contents of Aeronautical Information Publication (AIP) are:

- A) GEN, ENR (en-route) and AD (aerodromes)
- B) GEN, AGA, COM, RAC, FAL, SAR, MET, MAP
- C) GEN, AGA, COM, ENR, FAL
- D) GEN, ENR, RAG, AD

116- A detailed description of lower ATS routes can be found in part ____ section ____ of the AIP.

- A) 2; ENR0
- B) 2; ENR3
- C) 3; AD0
- D) 3; AD2

117- Which part of AIP contain information about sporting activity area?

- A) ENR 1.
- B) GEN 2.
- C) ENR 5.
- D) AD 1.

118- In which chapter of the AIP can you find a list with "location indicators"?

- A) GEN
- B) AGA
- C) ENR
- D) AD

119- Fuel available at an aerodrome will be published in:

- A) AIP-GEN
- B) AIP-AD
- C) AIP-RAC
- D) AIP-ENR

120- Operationally significant changes to the AIP shall be published in accordance with _____ procedures and shall be clearly identified by the acronym _____.

- A) Aeronautical information circular; AIRAC
- B) Aeronautical information regulation and control; AIRAC
- C) Aeronautical information and control; NOTAM
- D) Aeronautical information publication; AIS

121- Aerodrome location indicators are published in:

- A) AIP-GEN
- B) AIP-ENR
- C) AIP-RAC
- D) AIP-AD

122- The temporary, Long-term modification (3 months or more) and the short-term extensive or graphical information are published as follows:

- A) AIP Amendments.
- B) Trigger NOTAM.
- C) AIP Supplements.
- D) NOTAM.

123- Temporary changes on specifications for AIP supplements of long duration and information of short duration which contains extensive text and/or graphics shall be published as AIP supplements. It is considered a long duration:

- A) Three months or longer.
- B) Two months or longer.
- C) One year or longer.
- D) Six months or longer.

124- An AIP shall consist of the following three parts:

- A) AGA, MET, GEN.
- B) SAR, ENR, AD.
- C) GEN, ENR, AD.
- D) AIS, AD, RTE.

125- The identification of each prohibited, restricted, danger and caution area shall be composed by:

- A) The nationality letters for the location indicators assigned to the state, followed by P, R, D and C.
- B) The letters P (Prohibited), R (Restricted), D (Dangerous) and C (Caution) for the area concerned and figures.
- C) The nationality letters for location indicators assigned to the state or territory, followed the letters P, R, D, C and followed by figures.
- D) The letters P (Prohibited), R (Restricted), D (Dangerous) and C (Caution).

126- Name the chapter in the AIP where one can find a list of significant differences between national regulations and practices of the State and the related ICAO Standards, Recommended Practices and Procedures:

- A) GEN 1
- B) AD 1
- C) ENR4
- D) GEN 2

127- Detailed description of meteorological information provided at the aerodrome and an indication of which meteorological office is responsible, is in the following part of the AIP:

- A) RAC
- B) GEN
- C) MET
- D) AD

128- In which section of AIP are contained information elements relating to refueling facilities and limitations on refueling services?

- A) FAL
- B) GEN
- C) SAR
- D) AD

129- Each AIRAC AIP amendment page shall display:

- A) Page number only.
- B) Date of issue only.
- C) The effective date, page number and date of issue.
- D) Color coding.

130- Which section of the AIP contains information relating to the provision of communication Services?

- A) ENR
- B) AD
- C) SUPP
- D) GEN

131- Prohibited , Danger and Restricted areas must be designated by:

- A) Country identifier, followed by P/D/R , followed by the identifier.
- B) Country identifier followed by P/D/R , followed by assigned number.
- C) P/D/R followed by the identifier.
- D) Country identifier followed by numbers.

132- According to AIP “UIR” is the abbreviation of:

- A) Upper Information Region
- B) Upper information Center
- C) Upper flight Information Region
- D) Upper Airway

133- What is the purpose of Ahwaz NDB?

- A) Aerodrome & Enroute
- B) Enroute
- C) Aerodrome
- D) Airway fan marker

134- What is the firefighting category of Ardabil airport?

- A) CAT 7
- B) CAT 8
- C) CAT 5
- D) CAT 6

135- All flights before entering Iran ADIZ (Tehran FIR) are required to contact the appropriate air defense radar station on or, at least 10 minutes prior to entering Tehran FIR.

- A) 121.500 MHz – 243.000 MHz
- B) 121.000 MHz – 243.000 MHz
- C) 127.000 MHz – 135.000 MHz
- D) 127.800 MHz – 135.100 MHz

136- What is the location name of “OIKM”?

- A) Kermanshah
- B) Kerman
- C) Kashan
- D) Bam

137- What is the time of sunrise in Abadan city on 3rd of January?

- A) 07:04
- B) 07:14
- C) 06:14
- D) 06:24

138- What is the radius of Tabriz CTR?

- A) 40 NM
- B) 5 NM
- C) 15 NM
- D) 45 NM

139- What is (are) fuel available in Kerman Airport?

- A) 100 LL
- B) Jet A1, 100LL, JP4
- C) Jet A1
- D) Jet A1, JP4

140- What is the vertical limit of Gorgan CTR?

- A) 6,000 ft
- B) 15,500 ft
- C) FL155
- D) B & C are correct

141- What is the vertical limit of prohibited area OI- P5?

- A) 9500 ft MSL
- B) 8500 ft MSL
- C) 9000 ft MSL
- D) 7500 ft MSL

142- What is the transition altitude of Esfahan / Shahid Beheshti International Airport?

- A) 12,000 ft MSL
- B) FL120
- C) 13,000 ft MSL
- D) FL130

143- What is the upper vertical limit and radius of Tehran TMA?

- A) 8,500 ft – 60 NM
- B) FL275 – 70 NM
- C) 8,500 ft – 70 NM
- D) FL275 – 60 NM

144- What is the minimum flight altitude for entering Tehran FIR?

- A) FL150
- B) 10000 ft MSL
- C) 16000 ft MSL
- D) FL100

145- What is the ADIZ frequency?

- A) 127.800 MHz
- B) 135.100 MHz
- C) 118.400 MHz
- D) A & B are correct

146- How long before entering Tehran FIR an aircraft shall report?

- A) At least 20 minutes
- B) At least 15 minutes
- C) At least 10 minutes
- D) At least 5 minutes

147- What is the time zone (difference between local time and UTC) during winter period?

- A) 03:30
- B) 04:30
- C) 05:30
- D) 02:30

148- Where can we find runway obstacle free zone (OFZ) information?

- A) AD 2
- B) ENR
- C) GEN
- D) ED 1

149- Where can we find information about restricted area?

- A) GEN 4
- B) ENR 5
- C) AD 1
- D) ERN 6

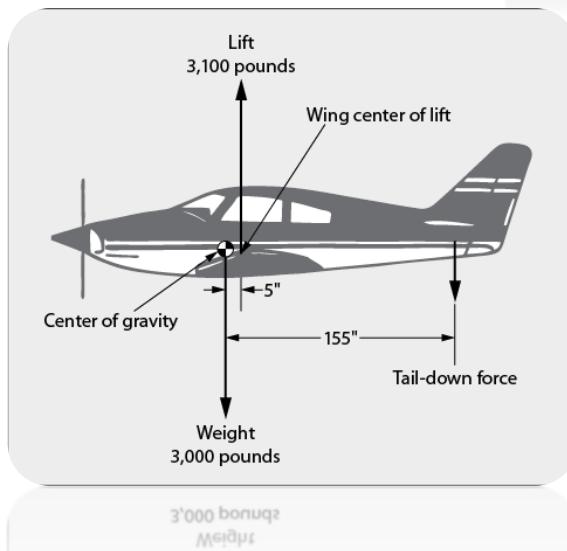
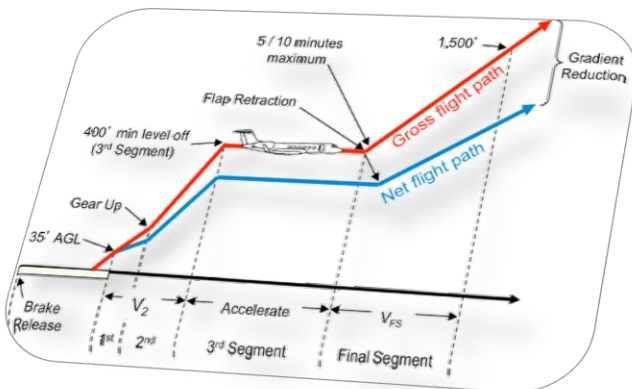
150- Who is responsible to provide AIP?

- A) STATE
- B) OPERATOR
- C) STATE OF OPERATOR
- D) ICAO

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	C	41	A	81	A	121	A
2	B	42	B	82	C	122	C
3	A	43	A	83	C	123	A
4	D	44	A	84	B	124	C
5	B	45	A	85	A	125	C
6	A	46	C	86	C	126	A
7	C	47	C	87	A	127	B
8	A	48	D	88	B	128	D
9	B	49	C	89	C	129	C
10	A	50	A	90	B	130	D
11	D	51	B	91	A	131	B
12	B	52	A	92	B	132	C
13	A	53	D	93	C	133	C
14	B	54	A	94	B	134	A
15	D	55	B	95	B	135	D
16	B	56	C	96	C	136	D
17	C	57	C	97	D	137	B
18	A	58	C	98	D	138	D
19	B	59	C	99	A	139	C
20	B	60	C	100	D	140	C
21	A	61	A	101	D	141	D
22	B	62	B	102	B	142	C
23	C	63	B	103	A	143	B
24	D	64	C	104	D	144	A
25	B	65	C	105	A	145	D
26	A	66	B	106	D	146	C
27	B	67	B	107	C	147	A
28	D	68	B	108	B	148	A
29	A	69	B	109	D	149	B
30	D	70	A	110	B	150	A
31	C	71	B	111	B		
32	D	72	C	112	B		
33	A	73	A	113	B		
34	C	74	A	114	A		
35	B	75	B	115	A		
36	C	76	C	116	B		
37	B	77	A	117	C		
38	A	78	C	118	A		
39	C	79	B	119	B		
40	A	80	C	120	B		

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AIRCRAFT PERFORMANCE



NOTE: "All questions in this chapter are related to reciprocating engine aircraft"

1- Which factor does not effect on V_{s1} ?

- A) Weight
- B) Configuration
- C) Altitude
- D) All answers are correct

2- The stalling speed at specific configuration decrease by altitude increase.

- A) True
- B) False

3- Which factor affected on V_{s1} ?

- A) Weight
- B) Configuration
- C) Altitude
- D) A & B are correct

4- Uphill slope:

- A) Increases the takeoff distance required.
- B) Decreases the accelerate stop distance available.
- C) Decreases the takeoff distance available.
- D) Increase the takeoff run available.

5- Density altitude increase when:

- A) Temperature decrease
- B) Pressure increase
- C) Temperature increase
- D) Altitude decrease

6- The primary reason for computing density altitude is to determine aircraft performance.

- A) True
- B) False

7- High performance of aircraft will be obtained at:

- A) High density altitude
- B) High Temperature
- C) High weight
- D) A, B & C are incorrect

8- High density altitude causes:

- A) Engine power output decreases
- B) Propeller efficiency decreases
- C) Aerodynamic lift decreases
- D) All of answers are correct

9- In high humid air the engine performance decrease approximately as

- A) 10%
- B) 7 %
- C) 19%
- D) 21%

10- In high relative humidity condition, takeoff and climb performance reduce approximately as:

- A) 7%
- B) 10%
- C) 14%
- D) 19%

11- The most adverse effect on aircraft performance occurs at

- A) High altitude, hot, humid
- B) High altitude, cold, humid
- C) Low altitude, hot, humid
- D) Low altitude, cold, humid

12- “Humidity has most effect on density altitude.”

- A) True
- B) False

13- “Humidity “ causes to:

- A) Increase density altitude at lesser degree
- B) Decrease piston engine power output & propeller efficiency
- C) Decrease takeoff efficiency performance
- D) All answers are correct

14- If the headwind is of takeoff speed the takeoff distance will decrease by

- A) 19%-10%
- B) 10%-7%
- C) 10%-19%
- D) 14%-10%

- 15- If tailwind is takeoff speed the takeoff distance will increase by**
- A) 10%-19%
 - B) 14%-21%
 - C) 7%-19%
 - D) 10%-21%
- 16- What is the Max demonstrated crosswind component of aircraft when the V_{SO} is 60 kts?**
- A) 120 kts
 - B) 15 kts
 - C) 12 kts
 - D) 14 kts
- 17- Which statement is not correct about effect of increase weight on an aircraft performance?**
- A) Increase service ceiling
 - B) Increase Takeoff distance
 - C) Decrease climb performance
 - D) Decrease acceleration
- 18- Which of the following item has adversely effect on takeoff performance but is beneficial for landing performance?**
- A) Increase weight
 - B) Positive runway gradient
 - C) Negative runway gradient
 - D) Humidity
- 19- Negative runway gradient is good for landing but is not preferable for takeoff.**
- A) True
 - B) False
- 20- The maximum amount of friction is on**
- A) Wet Runway.
 - B) Slushy Runway.
 - C) Dry Runway.
 - D) Grass Runway.
- 21- “Hydroplaning” is caused by**
- A) Thin layer of water that increase braking action.
 - B) Thin layer of snow that increase braking action.
 - C) Thin layer of snow that separate the landing gear from Runway.
 - D) Thin layer of water that separate the tires from Runway.

22- “Dynamic Hydroplaning” is defined as:

- A) Standing water about one-tenth of one inch or more.
- B) Standing water or slush about one-thousandth inch.
- C) A thin film of water, more than one-thousandth inch.
- D) A thin film of water, not more than one- tenth of an inch.

23- A higher temperature causes in air density and in lift.

- A) Increase; decrease
- B) Decrease; increase
- C) Increase; increase
- D) Decrease; decrease

24- Which runway has a minimum amount of braking action?

- A) Dry
- B) Grass
- C) Wet
- D) All answers are correct

25- On which runway braking action completely lost?

- A) Dry
- B) Slushy
- C) Wet
- D) Ice

26- On which runway compare dry runway , aircraft ground roll increase:

- A) Ice
- B) Slushy
- C) Wet
- D) All answers are correct

27- The max level speed defined as:

- A) Max power generates by engine and total drag generate by airplane.
- B) The intersection of thrust available and trust required curve.
- C) Max thrust available divided to max thrust required.
- D) Max thrust required divided to max thrust available.

28- Which statement is correct?

- A) V_x is best angle of climb speed.
- B) V_x increase by altitude increase for piston engine aircraft.
- C) V_x increase engine temperature.
- D) All answers are correct.

29- Which statement is correct?

- A) V_x use for climb and obstacle clearance.
- B) V_x is best angle of climb speed.
- C) V_y decrease by increasing altitude for piston engine aircraft.
- D) All answers are correct.

30- Which statement is correct?

- A) V_x is difference between thrust horse power and thrust required.
- B) V_y is difference between thrust horse power available and thrust horse power required.
- C) Max altitude gains in short distance when climb by V_x .
- D) All answers are correct.

31- Which statement is correct about V_x ?

- A) Max altitude gains at short distance.
- B) Increase by altitude increase for piston engine aircraft.
- C) Best angle of climb speed.
- D) All answers are correct.

32- Which statement is correct?

- A) Thrust required is constant by altitude increase.
- B) Max rate of climb in service ceiling is 100 ft/min for piston engine aircraft.
- C) Max rate of climb in absolute ceiling is zero.
- D) All answers are correct

33- Which statement is correct about absolute ceiling?

- A) The point that V_x is equal to V_y .
- B) The rate of climb is zero.
- C) The speed of aircraft in absolute ceiling is V_{ZRC} .
- D) All answers are correct.

34- What is the effect of high temperature on reciprocating engine performance?

- A) Decrease by increasing density.
- B) Decrease by decreasing density.
- C) Increase by increasing density.
- D) Increase by decreasing density.

35- "Humidity " effects on:

- A) Reciprocating engine more than jet engine.
- B) Reciprocating engine but has no effect on jet engine.
- C) Jet engine but has no effect on reciprocating engine.
- D) Jet engine more than reciprocating engine.

36- Which symbol indicates minimum steady flight speed when airplane is still controllable?

- A) V_s
- B) V_{s1}
- C) V_{so}
- D) V_{sc}

37- What is the consequence of increasing atmospheric pressure on takeoff performance?

- A) A reduced takeoff distance and improved initial climb performance.
- B) An increased takeoff distance and degraded initial climb performance.
- C) An increased takeoff distance and improved initial climb performance.
- D) A reduced takeoff distance and degraded initial climb performance.

38- The effect of a decrease in air density is to:

- A) Increase the takeoff distance and reduce the rate of climb.
- B) Decrease the takeoff distance and reduce the rate of climb.
- C) Decrease the takeoff distance and increase the rate of climb.
- D) Increase the takeoff distance and increase the rate of climb.

39- What is the stalling speed with the landing configuration?

- A) V_{s1}
- B) V_s
- C) V_{so}
- D) V_{slg}

40- The maximum rate of climb that can be maintained at the absolute ceiling is:

- A) 125 Ft/min.
- B) 0 Ft/min.
- C) 500 Ft/min.
- D) 100 Ft/min.

41- Which statement is correct for a descent without engine thrust at maximum lift to drag ratio speed?

- A) Tailwind component decrease the ground distance covered.
- B) Headwind component increase the ground distance covered.
- C) Headwind component increase fuel and time to decent covered.
- D) Tailwind component increases the ground distance covered.

42- The greatest glide time obtain at:

- A) Lower mass.
- B) Headwind.
- C) Tailwind.
- D) Higher mass.

43- Density altitude is the:

- A) Pressure altitude corrected for nonstandard temperature.
- B) Altitude reference to the standard datum.
- C) Altitude read directly from the altimeter.
- D) Height above the surface.

44- "Landing distance" is measure from

- A) 35' height above threshold of landing surface
- B) 50' height above threshold of landing surface
- C) 60' height above threshold of landing surface
- D) 70' height above threshold of landing surface

45- Which statement is correct?

- A) Take off distance is determined from starting point to 50 ft height above surface.
- B) Landing distance is determined from 50 ft height above threshold to full stop.
- C) Take off roll is determined from starting point to lift off point.
- D) All answers are correct.

46- What is the takeoff distance for piston engine aircraft?

Distance between starting point and LOF point = 2000'

Distance between LOF point and 50' height = 500'

- A) 2000'
- B) 3000'
- C) 500'
- D) 2500'

47- Given:

Distance from starting point to LOF point = 1500'

Distance from LOF point up to midpoint between lift off and 50' height (AGL) is 150'.

Find takeoff distance for piston engine aircraft.

- A) 1800'
- B) 1500'
- C) 500'
- D) 1300'

48- Find "Takeoff roll " for piston engine aircraft:

Distance from starting point up to LOF point = 2000'

Distance from LOF point up to 50' height AGL = 200'

- A) 2000'
- B) 2200'
- C) 2400'
- D) 1425'

49- What is the stall speed of an airplane under a load factor of 2 G's if the uncelebrated stall speed is 60 knots?

- A) 66 knots
- B) 74 knots
- C) 84 knots
- D) 102 knots

50- For a piston-engine airplane at a constant altitude, angle of attack and configuration, an increased weight will require:

- A) More power but less speed.
- B) More power and the same speed.
- C) More power and more speed.
- D) The same power but more speed.

51- Which is the correct symbol for indicating absolute ceiling speed?

- A) V_{s1}
- B) V_s
- C) V_{ZRC}
- D) V_2

52- Which one of the following speed provide maximum endurance with specific amount of fuel?

- A) V_{mp}
- B) V_s
- C) V_{BR}
- D) V_{2min}

53- Which one of the following speed provide maximum range with specific amount of fuel?

- A) V_{MA}
- B) V_{MO}
- C) V_{BE}
- D) V_{MD}

54- Minimum drag speed (V_{MD}) is:

- A) Proportional to weight.
- B) A function of pressure altitude.
- C) A function of density altitude.
- D) Proportional to temperature.

55- Flying the "backside of thrust curve" means:

- A) The thrust required is independent of the airspeed.
- B) A lower airspeed requires more thrust.
- C) A thrust reduction results in an acceleration of the airplane.
- D) A lower airspeed requires less thrust because drag is decreased.

56- In a glide by piston engine aircraft the best glide angle will be obtained by flying at:

- A) V_{NE}
- B) A speed close to the stalling speed.
- C) V_{MD}
- D) V_{MO}/M_{MO}

57- What condition is found at the intersection of the thrust available and the drag curve?

- A) Un-accelerated flight in a climb.
- B) Accelerated climb.
- C) Un-accelerated level flight.
- D) Accelerated level flight.

58- An airplane is climbing at a speed 10 kts lower than the speed for best rate of climb:

- A) Angle of climb will decrease.
- B) Angle of climb will increase.
- C) Angle of climb will not change.
- D) Rate of climb will not change.

59- How does the indicated airspeed for best angle of climb and best rate of climb of piston engine vary with increasing altitude?

- A) Both decrease.
- B) Both increase.
- C) Best angle of climb increases while best rate of climb decreases.
- D) Best angle of climb decreases while best rate of climb increases.

60- Climbing to cruise altitude in a headwind will:

- A) Decrease the time taken.
- B) Decrease the ground distance covered.
- C) Increase the time taken.
- D) Increase the fuel flow rate.

61- High Humidity causes in air density and in lift.

- A) Increase; decrease
- B) Decrease; increase
- C) Increase; increase
- D) Decrease; decrease

62- The margin between the power available and the power required:

- A) Increases when the aircraft climbs.
- B) Decreases when the aircraft climbs.
- C) Decreases when the aircraft descends.
- D) Remains the same.

63- Relative to the ground, a headwind the effective climb angle and a tailwind the effective climb angle.

- A) Increases; decreases
- B) Decreases; increases
- C) Increases; increases
- D) Decreases; decreases

64- When does THRUST= DRAG?

- A) Climbing at a constant IAS.
- B) Descending at a constant IAS.
- C) Straight and level at a constant IAS.
- D) All answers are correct.

65- To achieve the maximum range over ground with headwind the airspeed should be slightly:

- A) Reduced to the gust penetration speed.
- B) Equal to the speed for maximum range cruise with no wind.
- C) Lower compared to the speed for maximum range cruise with no wind.
- D) Higher compared to the speed for maximum range cruise with no wind.

66- For piston engine aircraft, the rate of climb is maximum when:

- A) Angle of climb is a maximum.
- B) Excess thrust is a maximum.
- C) Lift is a maximum.
- D) Excess power is maximum.

67- For an aircraft gliding at its best glide range speed if Angle of attack is reduced:

- A) Glide distance will increase.
- B) Glide distance will remain unaffected.
- C) Glide distance will decrease.
- D) Glide distance.

68- V_x and V_y with takeoff flaps will be:

- A) Same as that for clean configuration.
- B) Higher than that for clean configuration.
- C) Lower than that for clean configuration.
- D) Changed so that V_x increases and V_y decreases compared to clean configuration.

69- A headwind will:

- A) Increase the flight path angle.
- B) Increase the angle of climb.
- C) Increase the rate of climb.
- D) Shorten the time of climb.

70- An increase in ambient temperature causes the absolute ceiling to:

- A) Decrease.
- B) Increase.
- C) Remain unchanged.
- D) Increase subject to its relation to ISA.

71- To maintain climb airspeed following an increase in temperature the rate of climb is:

- A) Reduced
- B) Increased
- C) Zero
- D) Unaffected

72- Which of the following will not decrease the value of V_s ?

- A) The CG in an aft position within the CG envelope.
- B) Increased altitude.
- C) Decreased weight.
- D) Increased flap setting.

73- If there is a decrease in atmospheric pressure and all other factors remain constant, it should result in:

- A) Increased takeoff distance and decreased climb performance.
- B) Increased takeoff distance and increased climb performance.
- C) Decreased takeoff distance and decreased climb performance.
- D) Decreased takeoff distance and increased climb performance.

74- How does a decreased pressure altitude at an airport affect airplane performance?

- A) Increased landing distance.
- B) Increased takeoff distance required.
- C) Decreased takeoff distance required.
- D) Increased takeoff run.

75- The landing distance required will be increased as a result of all of the following:

- A) Increased temperature, increased pressure altitude, uphill runway slope.
- B) Increased temperature, increased pressure altitude, downhill runway slope.
- C) Decreased temperature, decreased pressure altitude, uphill runway slope.
- D) Increased temperature, decreased pressure altitude, downhill runway slope.

76- As you accelerate in level flight from the speed at C_{LMAX} to maximum speed the total drag:

- A) Decreases.
- B) Increases then decreases.
- C) Increases.
- D) Decreases then increases.

77- Which of the following combinations adversely effect on takeoff and initial climb performance?

- A) Low temperature and low relative humidity.
- B) Low temperature and high relative humidity.
- C) High temperature and low relative humidity.
- D) High temperature and high relative humidity.

78- What is the minimum power required for piston engine aircraft?

- A) Usually a constant at all altitudes.
- B) Minimum drag speed V_{MD}
- C) Above V_{MD}
- D) Below V_{MD}

79- To obtain the maximum rate of climb:

- A) Power available must be less than the power required.
- B) Power required must be less than the power available.
- C) Power available must be equal to power required.
- D) Thrust must exceed drag by the greatest margin.

80- Compared to (V_x and V_y) at lower mass, (V_x and V_y) at higher mass will be:

- A) Lower.
- B) Same.
- C) Higher.
- D) V_x higher and V_y lower.

81- For a piston engine airplane, the speed for maximum range is:

- A) That which gives the maximum value of lift.
- B) That which gives the minimum value of drag.
- C) That which gives the minimum lift to drag ratio.
- D) 1.4 times the Stall speed in clean configuration.

82- The force exactly opposing and balancing lift in a glide descent is:

- A) Thrust x sin (angle of descent)
- B) Thrust x cos (angle of descent)
- C) Weight x sin (angle of descent)
- D) Weight x cos (angle of descent)

83- What happen to V_x and V_y if the landing gear is extended?

- A) V_x decreases and V_y increases.
- B) V_x and V_y decrease.
- C) V_x and V_y increase.
- D) V_x increases, V_y decreases.

84- Which force does balance thrust during climb?

- A) Drag + $W \cdot \sin \theta$
- B) Weight
- C) Drag
- D) Drag + $W \cdot \cos \theta$

85- In a given configuration the endurance of a piston engine airplane only depends on:

- A) Speed, mass and fuel on board.
- B) Altitude, speed, mass and fuel on board.
- C) Altitude, speed and mass.
- D) Speed and mass.

86- According to the information in a light aircraft manual, which gives two power settings for cruise (65% and 75%) If you fly at 75% instead of 65%:

- A) Cruise speed will be higher; fuel consumption will be higher.
- B) Cruise speed will be the same; fuel consumption will be the same.
- C) Cruise speed will be higher; fuel consumption will be lower.
- D) Cruise speed will be higher; fuel consumption will be the same.

87- (Refer to figure P-05) Determine the total distance required for takeoff to clear a 50-foot obstacle for the following conditions:

OAT: 20 °C
 Pressure Altitude: 6000 ft
 Takeoff weight: 2600 lbs
 Headwind component: calm

- A) 1200 feet
- B) 2050 feet
- C) 1500 feet
- D) 3000 feet

88- (Refer to figure P-05) Determine the total distance required for takeoff to clear a 50-foot obstacle for the following conditions:

OAT: 30 °C
 Pressure Altitude: 6000 ft
 Takeoff weight: 2300 lbs
 Headwind component: 20 Kts

- A) 2000 feet
- B) 850 feet
- C) 1500 feet
- D) 900 feet

89- (Refer to Figure P-06) Determine the density altitude for the following conditions:

Altimeter setting: 30.10 " Hg

Temperature: 27 °C

Airport elevation: 665 ft

- A) 500 feet
- B) 1500 feet
- C) 2000 feet
- D) 2500 feet

90- (Refer to figure P-06) Temperature decreases from 27 °C to 16 °C and pressure altitude remains at 3000 feet. What effect does it have on the density altitude?

- A) 900 feet increase
- B) 1300 feet increase
- C) 900 feet decrease
- D) 1300 feet decrease

91- (Refer to figure P-07) Determine the fuel, time, and distance for a normal climb from an airport at a pressure altitude of 4000 feet to a pressure altitude of 8000 feet?

OAT: 7 °C above ISA (at departing airport)

Weight: 3400 pounds

- A) 5 minutes, 29 pounds and 11 NM.
- B) 5 minutes, 11 pounds and 11 NM.
- C) 5.5 minutes, 28.1 pounds and 12.1 NM.
- D) 5.5 minutes, 12.1 pounds and 12.1 NM.

92- (Refer to figure P-07) Determine the fuel, time and distance for a normal climb from an airport at sea level to a pressure altitude of 8000 feet?

OAT: 29 °C (at departing airport)

Weight: 3700 pounds.

- A) 12 minutes, 24 pounds and 23 NM.
- B) 14.4 minutes, 28.8 pounds and 27.6 NM.
- C) 14.4 minutes, 42 pounds and 27.6 NM.
- D) 14.4 minutes, 44.8 pounds and 27.6 NM.

93- (Refer to figure P-08) Determine the fuel consumption for a 500-nautical mile flight under the following conditions.

Pressure altitude: 8000 feet

Temperature: 2 °C (IOAT)

Manifold pressure: 20.2 "Hg

Wind: Calm

- A) 42.5 Gallons
- B) 33.8 Gallons
- C) 35.8 Gallons
- D) 30.2 Gallons

94- (Refer to figure P-08) Determine the fuel consumption for a 900-nautical mile flight under the following conditions.

Pressure altitude: 12000 feet
Temperature: -6 °C (IOAT)
Manifold pressure: 18.8 "Hg
Wind: Calm

- A) 58.5 Gallons
- B) 50.8 Gallons
- C) 69.8 Gallons
- D) 60.2 Gallons

95- (Refer to figure P-09) Determine the headwind and crosswind components for a wind from 270° at 20 knots when you are landing on runway 21.

- A) Headwind component: 10 knots / Crosswind component: 20 knots.
- B) Headwind component: 17 knots / Crosswind component: 10 knots.
- C) Headwind component: 10 knots / Crosswind component: 17 knots.
- D) Headwind component: 15 knots / Crosswind component: 25 knots.

96- (Refer to figure P-09) Determine the maximum wind velocity for a 60° crosswind, if the maximum crosswind component for the airplane is 26 knots.

- A) 22 knots
- B) 16 knots
- C) 35 knots
- D) 30 knots

97- (Refer to figure P-10) Determine the total distance required to land over a 50-foot obstacle under the following conditions:

OAT: 20 °C
Pressure Altitude: 2000 ft
Weight: 2300 lbs
Wind component: Calm

- A) 2000 feet
- B) 1450 feet
- C) 1000 feet
- D) 900 feet

98- (Refer to figure P-10) Determine the total distance required to land under the following conditions:

OAT: 13 °C
Pressure Altitude: 6000 ft
Weight: 2500 lbs
Headwind component: 20 Kts

- A) 850 feet
- B) 900 feet
- C) 1050 feet
- D) 1200 feet

99- (Refer to figure P-10-A) Determine the approximate landing ground roll distance.

OAT: Standard
Pressure Altitude: Sea level
Headwind component: 8 Kts

- A) 470 feet
- B) 356 feet
- C) 445 feet
- D) 401 feet

100- (Refer to figure P-10-A) Determine the approximate landing ground roll distance.

OAT: Standard
Pressure Altitude: 6250 ft
Headwind component: 4 Kts

- A) 508 feet
- B) 486 feet
- C) 457 feet
- D) 520 feet

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	C	31	D	61	D	91	C
2	B	32	D	62	B	92	D
3	D	33	D	63	A	93	C
4	A	34	B	64	C	94	D
5	C	35	B	65	D	95	C
6	A	36	A	66	D	96	D
7	D	37	A	67	C	97	B
8	D	38	A	68	C	98	A
9	B	39	C	69	A	99	B
10	B	40	B	70	A	100	C
11	A	41	D	71	A		
12	B	42	A	72	B		
13	D	43	A	73	A		
14	C	44	B	74	C		
15	D	45	D	75	B		
16	C	46	D	76	D		
17	A	47	A	77	D		
18	B	48	A	78	D		
19	B	49	C	79	B		
20	C	50	C	80	C		
21	D	51	C	81	B		
22	A	52	A	82	D		
23	D	53	D	83	B		
24	C	54	A	84	A		
25	D	55	B	85	B		
26	D	56	C	86	A		
27	B	57	C	87	B		
28	D	58	B	88	C		
29	D	59	C	89	C		
30	C	60	B	90	D		



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Annex 2

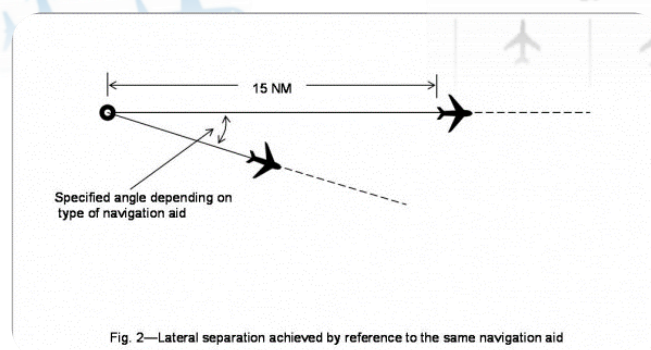
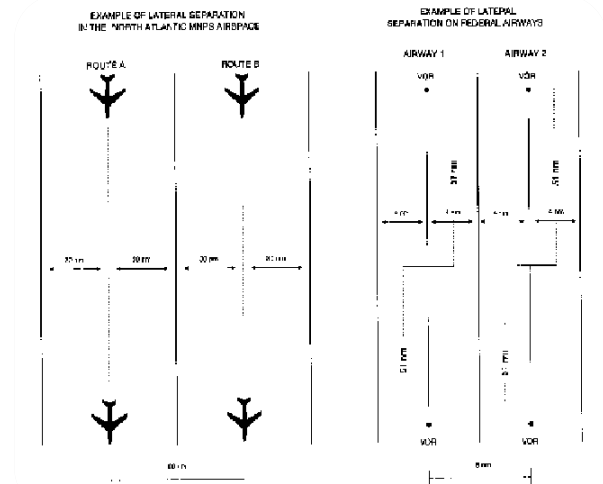
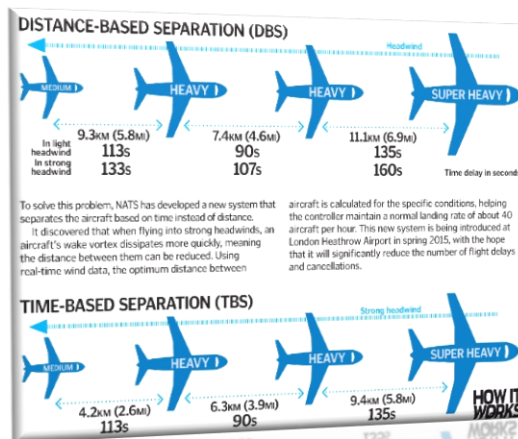


Fig. 2—Lateral separation achieved by reference to the same navigation aid

1- What is a danger area?

- A) An airspace of defined dimensions above the land areas or territorial waters of a State within which flight of aircraft is prohibited.
- B) An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.
- C) A NOTAM activated airspace where the general flight rules are disregarded.
- D) An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

2- What is Special VFR?

- A) A flight in IMC for which the pilot and/or the airplane is unable to comply with the requirements of IFR.
- B) A VFR flight cleared by ATC to operate within a CTR in meteorological conditions below VMC.
- C) A VFR procedure to enable an airplane to transit a control zone or area in IMC without compliance with IFR.
- D) Any flight cleared by ATC to operate in conditions less than VMC in which the pilot is required to remain clear of cloud and in sight of the surface.

3- Which type of traffic shall comply with rules of the air?

- A) To all IFR traffic.
- B) To all VFR traffic.
- C) Only to aircraft registered in the State being overflown.
- D) Both A and B are correct.

4- A series of red flashes directed to an aircraft in flight from the aerodrome control tower means:

- A) Return to land and that clearance to land will be communicated in due course.
- B) Give way to another aircraft.
- C) Aerodrome unsafe, do not land.
- D) Land for the moment regardless of previous instructions.

5- While flying at night another aircraft reports that you are on his 100 degrees relative bearing. Assuming you are on converging courses, you should see his:

- A) White navigation light.
- B) Red navigation light.
- C) Green and white navigation lights.
- D) Green navigation light.

6- Which action shall be taken by an aircraft in the traffic pattern of an aerodrome, experiencing radio failure to indicate difficulties which compel it to land without requiring immediate assistance?

- A) The repeated switching on and off of the landing lights.
- B) Switching on and off four times the landing lights.
- C) Switching on and off four times the navigation lights.
- D) Switching on and off three times the landing lights.

7- At an aerodrome, a red pyrotechnic means:

- A) Return for landing immediately.
- B) Give way to another aircraft being compelled to land.
- C) Aerodrome unsafe, do not land.
- D) Notwithstanding any previous instructions, do not land for the time being.

8- You have filed a VFR flight plan. What do you put in field 16 (total estimated elapsed time)?

- A) Time from brakes off to overhead the destination.
- B) Time from brakes off to landing time.
- C) Time from takeoff to overhead the destination.
- D) Time from takeoff to landing.

9- A steady red light beam directed at an aircraft in flight from the aerodrome control tower means:

- A) Give way to other aircraft and continue circling.
- B) Clear the landing area immediately.
- C) Airfield closed, do not land here.
- D) Airfield unserviceable, land elsewhere.

10- An aircraft operated on, or in the vicinity of, an aerodrome shall whether or not within an ATZ:

- 1- Observe other aerodrome traffic for the purpose of avoiding collision.
- 2- Conform with or avoid the pattern of traffic formed by other aircraft in operation.
- 3- Make all turns to the right, when approaching for landing or taking-off unless otherwise instructed.
- 4- Land and take off into the wind unless safety, the runway configuration, or an air traffic consideration determines that a different direction should be used.

Which statements are correct?

- A) 2,3,4
- B) 1,3,4
- C) 1,2,4
- D) 1,2,3

11- An aircraft shall not be flown over the congested area of cities, towns or settlements unless at a height that will permit:

- A) In the event of an emergency a landing to be made safely.
- B) In the event of an emergency the aircraft can fly to the nearest suitable aerodrome.
- C) In the event of an emergency the aircraft can be flown away from the congested area.
- D) In the event of an emergency a landing to be made safely at the nearest airfield.

12- Aircraft shall not be flown in formation except:

- A) By pre-arrangement among the pilots taking part.
- B) By pre-arrangement among the PICs taking part.
- C) By pre-arrangement among the PICs taking part and if the flight is to be in control air space in accordance with the conditions laid out by ICAO Annex 2.
- D) By pre-arrangement among the PICs taking part and if the flight is to be in control air space in accordance with the conditions laid out by ICAO Annex 2 and supplemented by the national procedures.

13- For which of the following is a flight plan, in accordance with Annex 2, to be submitted?

- A) Any flight across an international borders.
- B) Any IFR flight in advisory airspace.
- C) Any flight in controlled airspace and receive air traffic control service.
- D) All answers are correct.

14- An aircraft is coming in from the left. Which light will you see first?

- A) Steady red.
- B) Steady green.
- C) Flashing green.
- D) White.

15- If the ground visibility is reported 1000 m, can a special VFR flight take off from an aerodrome in a control zone?

- A) No.
- B) Yes, provided the cloud ceiling is higher than 500 ft.
- C) Yes.
- D) Yes, provided the pilot remains in visual contact with the ground.

16- On a VFR flight, your magnetic track is 005°, the magnetic heading 355°. Which of the following flight level is correct?

- A) FL60
- B) FL55
- C) FL65
- D) FL70

17- On a VFR flight, which of the following cruising levels would you select under the following conditions: True track 358°, variation 3°E, deviation 2°W?

- A) FL80
- B) FL65
- C) FL70
- D) FL75

18- When an aircraft is operating in class F airspace below 900 m AMSL, the minimum horizontal distance from cloud for VFR flight is:

- A) 1500 Ft.
- B) 1.500 m.
- C) 5 km.
- D) Clear of clouds and surface in sight.

19- VFR flights shall not be operated under which of the following conditions?

- 1. Above FL200
- 2. At transonic and supersonic speeds

- A) Both statements are correct.
- B) Neither statement is correct.

20- A VFR flight shall comply with the ATC clearances under which of the following conditions?

- 1. When operated in Class A, B, C and D airspace.
- 2. When forming part of aerodrome traffic at a controlled aerodrome.
- 3. When operated as special VFR flights.

- A) All statements are correct.
- B) 1, 2 are correct.
- C) 2, 3 are correct.
- D) 1, 3 are correct.

21- In areas where a separation minimum of 1000 ft is applied up to FL410, authorization for VFR flight shall not be granted above which flight level?

- A) FL190
- B) FL200
- C) FL240
- D) FL290

22- An aircraft used for simulated instrument flying must have:

- A) Dual controls.
- B) Dual controls and a competent observer.
- C) A qualified safety pilot and fully functioning dual controls.
- D) A competent observer in the front seat.

23- What is the appropriate IFR flight level for a magnetic track of 125° in non-RVSM airspace?

- A) FL280
- B) FL290
- C) FL350
- D) FL310

24- An aircraft intercepted by another aircraft, if equipped with SSR transponder shall, unless otherwise instructed by the appropriate ATS unit, select one of the following codes in mode A:

- A) 7000
- B) 7700
- C) 7500
- D) 7600

25- An intercepted aircraft is to attempt to communicate with the intercepting aircraft. Which frequency is to be used?

- A) 121.500 MHz
- B) 118.100 MHz
- C) 249.000 MHz
- D) 123.450MHz

26- During flight below the transition altitude, the altimeter of an aircraft shall be set to:

- A) QNH and its vertical position is expressed in terms of height.
- B) QNH and its vertical position is expressed in terms of altitude.
- C) QNE and its vertical position is expressed in terms of flight levels.
- D) QNE and its vertical position is expressed in terms of altitude.

27- At or below the transition altitude, the altimeter setting should be:

- A) QFE
- B) QNE
- C) 1.013,2 hPa
- D) QNH

28- The vertical position of an aircraft at or above the transition level will be reported:

- A) As altitude.
- B) As height.
- C) As flight level.
- D) According to pilot's choice.

29- At least which services have to be provided by ATS within a flight information region?

- A) Flight information service and alerting service.
- B) Flight information service.
- C) Flight information service and air traffic advisory service
- D) Flight information service and air traffic control service.

30- A TMA is:

- A) An area in which submission of a flight plan is not required.
- B) A control airspace establish at confluence of ATS route around one or major aerodrome.
- C) A CTR.
- D) Available at all times to VFR traffic.

31- A controlled airspace extending upwards from the surface of the Earth to a specified upper limit is:

- A) Air traffic zone.
- B) Control area.
- C) Control zone.
- D) Advisory airspace.

32- The definition of "Maneuvering Area" is:

- A) That part of an aerodrome to be used for takeoff, landing and taxiing of aircraft, including apron(s).
- B) That part of an aerodrome to be used for takeoff, landing and taxiing of aircraft, excluding apron(s).
- C) That part of an aerodrome to be used for takeoff, landing and taxiing of aircraft, including movement area and apron(s).
- D) None of the above is correct.

33- For an IFR flight to an airport equipped with navigation aids, the estimated time of arrival is the estimated time at which the aircraft:

- A) Will leave the initial approach fix to start the final approach.
- B) Will land.
- C) Will stop on the parking area.
- D) Will arrive over the designated navigation facility.

34- What is the objective of the alerting service?

- A) To prevent collisions between aircraft.
- B) To provide the advisory service.
- C) To notify appropriate organizations regarding aircraft in need of assistance.
- D) Provide advice and information useful to the safe and efficient conduct of flights.

35- A controlled flight is:

- A) Any flight in C, D or E class airspace.
- B) Any flight in uncontrolled airspace.
- C) Any flight which is subject to an ATC clearance.
- D) Any IFR flight.

36- FIS:

- A) Provides an aerodrome and approach control service for the efficient conduct of flight.
- B) Provides flight plan services for the safe and efficient conduct of flight.
- C) Provides control useful for the safe and efficient conduct of flight.
- D) Provides advice and information useful for the safe and efficient conduct of flight.

37- Approach control service is provided for:

- A) All arriving and departing controlled flights.
- B) All arriving IFR traffic.
- C) Traffic within the CTA.
- D) All VFR traffic.

38- ATC clearances are based on:

- A) the en-route structure of the airway system
- B) Expediting and separating air traffic.
- C) Known traffic conditions which affect safety in aircraft operations.
- D) Both A and C are correct.

39- Which of the following is not an emergency frequency?

- A) 121,5 MHz
- B) 243,0 MHz
- C) 2.182 kHz
- D) 123,45 MHz

40- The part of an aerodrome provided for the stationing of aircraft for the purpose of embarking and disembarking passengers, loading and unloading of cargo and refueling and parking is known as:

- A) Movement area.
- B) Maintenance area.
- C) Apron.
- D) Maneuvering area.

41- Which of the following signals is a distress signal?

- A) A parachute flare showing a red light.
- B) The repeated switching on and off the landing lights.
- C) The repeated switching on and off the navigation lights.
- D) In radio telephony the spoken word PAN PAN.

42- For which type of operation, the advisory service may be provided?

- A) Controlled IFR
- B) SVFR
- C) CVFR
- D) IFR

43- What is the purpose of air traffic control service?

- A) Prevent collision between aircraft
- B) Expedite flow of traffic
- C) A and B
- D) A or B

44- How we can notify the pilot the limitation or irregularity of navigation and aerodrome facility?

- A) NOTAM
- B) Direct communication
- C) General call and broadcast
- D) All answers are correct

45- Maneuvering area is not to be used for the purpose of:

- A) Take-off
- B) Landing
- C) Taxing
- D) Loading passenger

46- The control area established at the confluence of ATS routes is:

- A) TMA
- B) CTR
- C) ATZ
- D) AWY

47- Airway is a control area in the form of:

- A) Corridor
- B) Area
- C) Arrival route
- D) Uncontrolled route

48- How many controlled airspaces are classified by ICAO?

- A) 5
- B) 7
- C) 4
- D) 3

49- Within which class of controlled airspace an IFR is not subject to control?

- A) E
- B) C
- C) D
- D) All answers are incorrect

50- Air traffic advisory service is provided in:

- A) Control area
- B) Advisory area
- C) Advisory route
- D) B & C are correct

51- Based on what facility the ACAS operate:

- A) NAVAIDS
- B) SSR
- C) SSR transponder
- D) Communication

52- What is vertical position of an aircraft, if set 1013.2 hPa?

- A) Flight level
- B) Altitude
- C) Height
- D) None

53- What will be the level of aircraft below lowest usable Flight level?

- A) Flight level
- B) Altitude
- C) Height
- D) None

54- What will be the level of an airplane at transition altitude?

- A) Altitude
- B) Flight level
- C) Height
- D) B and C

55- Who is the relevant authority for an aircraft operating over high seas?

- A) State of manufacture
- B) State of design
- C) State of registry
- D) State of operator

56- Chang over point may be established on a route which is equipped with:

- A) DME
- B) NDB
- C) VOR
- D) ILS

57- Clearance limit are limited to:

- A) Appropriate significant point.
- B) Controlled airspace boundary
- C) Destination
- D) All answers are correct

58- Repetitive flight plan is submitted by the:

- A) Pilot - in - command
- B) Operator
- C) Dispatcher
- D) All answers are correct

59- Within which airspace SVFR is authorized?

- A) ATZ
- B) TMA
- C) AWY
- D) CTR

60- What will be the minimum ceiling for VFR at a controlled aerodrome?

- A) 1000 ft
- B) 1000 m
- C) 1500 m
- D) 1500 ft

61- What is minimum height of a VFR flight over congested area?

- A) 2000'
- B) 500'
- C) 100'
- D) 1000'

62- Who is responsible to establish minimum flight altitude?

- A) State
- B) Operator
- C) Pilot-in-command
- D) All answers are correct

63- Who is responsible for the operation of aircraft?

- A) Pilot-in-command
- B) Operator
- C) State
- D) A person who recognize by ATCU

64- Which navigation light of overtaken aircraft may not be seen at night?

- A) Port
- B) Starboard
- C) Rear
- D) A or B are correct

65- Which aircraft has right of way?

- A) Landing
- B) Taking off
- C) Emergency
- D) Urgency

66- What is the first action of pilots when two aircraft are approaching head-on, on the ground?

- A) Alter its course to the left.
- B) Alter its course to the right
- C) Both aircraft shall stops
- D) Both aircraft alter heading to the right

67- What is the purpose of using navigation light?

- A) Indicate relative flight path of aircraft
- B) Attract attention
- C) A and B
- D) A or B

68- What is the direction of turn when approaching for landing and after taking off?

- A) Left
- B) Right
- C) Depend to pilot decision
- D) Depends to wind direction

69- Which flight plan is used as a reference to continue flight on a specific route when total communication is lost?

- A) Flight plan
- B) Filed flight plan
- C) Current flight plan
- D) RPL

70- Within which class of airspace the VFR flight are not permitted?

- A) class B
- B) class A
- C) class C
- D) class D

71- Who is responsible to publish AIP:

- A) Operator
- B) State
- C) ICAO
- D) ATS authority

72- What is the purpose of ACAS?

- A) Provide traffic and resolution advisory to pilot
- B) Provide advice to ATC
- C) Provide weather information
- D) Receive information by ADS

73- What is the term of level above transition altitude?

- A) Altitude
- B) Flight level
- C) Height
- D) QNH

74- Who is the appropriate authority of an aircraft operating over a territory of a state?

- A) The state having sovereignty
- B) State of registry
- C) State of design
- D) State of manufacture

75- The lowest layer of clouds is called ceiling when it is:

- A) Below 6000 m
- B) Below 20000 ft
- C) Above 6000 m
- D) "A" or "B" are correct

76- Which portion of flight is called "significant portion" of flight?

- A) Cruise
- B) Climb
- C) Descend
- D) None

77- Which area shall not be established over the high seas?

- A) Prohibited area
- B) Restricted area
- C) Danger area
- D) A and B are correct

78- What is the minimum flight visibility for VFR at 12000 ft?

- A) 5 km
- B) 8km
- C) 1500m
- D) 1000m

79- Above what flight level, the VFR flight shall not operate?

- A) 200
- B) 20000
- C) 290
- D) 29000

80- When may an IFR flight cancel its IFR flight?

- A) Ground in sight
- B) In VMC
- C) Uninterrupted ground in sight
- D) Uninterrupted VMC

81- An IFR flight shall not operate?

- A) Above MEA
- B) Above FL 200
- C) Below minimum flight altitude
- D) Along advisory route

82- Who are responsible to arrange a formation flight within uncontrolled airspace?

- A) Pilots -in-command
- B) Appropriate authority
- C) Air traffic controller
- D) None

83- What is the maximum lateral distance between aircraft in formation flight?

- A) 1NM
- B) 0.5 NM
- C) 1km
- D) B and C are correct

84- What is the maximum vertical separation of formation flight?

- A) 100 m
- B) 30 m
- C) 30 ft
- D) None

85- The aircraft that has right of way shall maintain its:

- A) Heading
- B) Speed
- C) A or B
- D) A and B are correct

86- What action shall be taken by an overtaking aircraft on the ground?

- A) Contact with ATC
- B) Turn left
- C) Keep well clear
- D) All answers are correct

87- Which lights may be switched off during flight?

- A) Anti-collision lights
- B) Red anti-collision lights
- C) Any flashing lights
- D) Green flashing light

88- How long after ETA or acknowledge expected approach time the radio failure aircraft must to be landed?

- A) Within 3 min
- B) Within 20 min
- C) Within 30 min
- D) Within 40 min

89- Who is the appropriate authority regarding flight over other than the high seas?

- A) State of operator
- B) State of registry
- C) State of occurrence
- D) State of territory being overflown

90- ADS stand for:

- A) Automatic direction specification
- B) Aerodrome data system.
- C) Aviation development service
- D) Automatic dependent surveillance

91- Acrobatic flight is a flight consist of manoeuvres performed by an aircraft involving abrupt changes in attitude or speed

- A) Intentionally.
- B) Compulsory.
- C) Automatically.
- D) All answers are correct.

92- Advisory route is

- A) A designated route along which air traffic control service is available.
- B) A designated control zone within which air traffic advisory service is available.
- C) A designated route along which air traffic control and advisory service is available.
- D) A designate route along which air traffic advisory service is available.

93- Movement of helicopter/VTOL above the surface of an aerodrome is normally at a ground speed

- A) More than 20Kt
- B) 20Kt
- C) Less than 20Kt
- D) 37Km

94- Aeronautical information publication will be issued by:

- A) State
- B) Operator
- C) ATC unit
- D) Flight standard

95- ACAS operation is based on:

- A) Primary surveillance radar
- B) Secondary surveillance radar transponder
- C) Pressure altitude
- D) Single side band

96- An airspace of defined dimension established around an aerodrome for the protection of aerodrome traffic is

- A) CTR.
- B) ATZ.
- C) CTA.
- D) TMA.

97- Maneuvering area is consisting of:

- A) RUNWAY and TAXIWAY
- B) RUNWAY, TAXIWAY and apron
- C) RUNWAY, TAXIWAY and isolated parking
- D) All answers are correct

98- All aircraft in flight and all traffic operating on the maneuvering area of an aerodrome is:

- A) Controlled traffic
- B) Known traffic
- C) Aerodrome traffic
- D) Air traffic

99- Authorization for an aircraft to proceed under condition specified by air traffic control unit, is:

- A) ATC clearance
- B) Flight permission number
- C) Controlled clearance
- D) Flight clearance

100- How many airspaces are designated by ICAO?

- A) 7
- B) 5
- C) 6
- D) 4

101- Which one of the following airspaces is designated for Iran?

- A) A, C, D, G
- B) A, C, D, E, G
- C) A, B, D, F, G
- D) A, C, D, F

102- Airway is a control area established in the form of:

- A) Circle
- B) Rectangular
- C) Corridor
- D) Triangle

103- Which type of pressure is used below transition level?

- A) QNE
- B) QFE
- C) QNH
- D) 1013.2 hPa

104- Altitude is measured from....

- A) MSL
- B) AGL
- C) Aerodrome elevation
- D) All

105- The point to which an aircraft granted by air traffic control clearance, is

- A) Clearance limit
- B) Clearance expired
- C) Change over point
- D) Point of departure

106- Who are safety-sensitive personnel?

- A) Air traffic controllers
- B) Crew members
- C) Aircraft maintenance personnel
- D) All answers are correct

107- An airspace extending upwards from surface of the earth is....

- A) Control area
- B) Control zone
- C) ATZ
- D) TMA

108- When altimeter setting sets on QNE, the vertical distance of aircraft will be expressed in:

- A) Height
- B) Altitude
- C) Flight level
- D) Level

109- Radiotelephony is a form of radio communication in the form of

- A) Speech
- B) Signal
- C) Data link
- D) All answers are correct

110- SVFR is.....

- A) A VFR flight cleared by ATC within CTR below VMC.
- B) A controlled flight cleared by ATC within TMA below VMC.
- C) A VFR flight cleared by ATC within ATZ below VMC.
- D) A VFR flight cleared by ATC within CTZ below IMC.

111- Taxiing is movement of an aircraft on the surface of an aerodrome under its own power.....

- A) Including take-off
- B) Excluding take-off
- C) Excluding take-off and landing
- D) Including take-off and landing

112- Advice provided by ATC unit specifying maneuvers to assist a pilot to avoid a collision is:

- A) Traffic information
- B) Traffic resolution
- C) Traffic avoidance advice
- D) Resolution advisory

113- By which reason, a pilot may depart from rules of the air or ATC clearance?

- A) In case of radio communication failure
- B) Economic
- C) Urgency
- D) Interest of safety

114- Which one of the following lights will indicate the aircraft flight path?

- A) Navigation light
- B) Anti-collision light
- C) Landing light
- D) None

115- EOBt is the time:

- A) At which the aircraft will commence taxi associated to departure.
- B) At which the aircraft will request the start up.
- C) At which the aircraft will enter the runway for take-off.
- D) At which the aircraft will stop on runway holding position.

116- An aircraft taxiing on the maneuvering area of an aerodrome shall stop and hold at:

- A) All runway holding positions.
- B) At lighted stop bars.
- C) All marking areas.
- D) A and B are correct.

117- Which one is not correct?

- A) An aircraft that is aware that another aircraft is approaching to land, shall give way to that aircraft.
- B) An aircraft taxiing on maneuvering area of an aerodrome, shall give way to aircraft taking-off.
- C) An aircraft in flight or operating on the ground shall give way to aircraft on final stage.
- D) An aircraft with medium category shall give way to heavy category aircraft.

118- Which one of the following manner decreases the safety of aircraft operation?

- A) Negligent
- B) Reckless
- C) Acrobatic
- D) All answers are correct

119- In formation flight, the vertical separation between leader and each formation flight shall not exceed

- A) 100ft.
- B) 200ft.
- C) 50ft.
- D) 150ft.

120- The actual time of leaving the holding fix for approach, depends on

- A) Estimated arrival time
- B) Expected approach time
- C) Approach clearance
- D) None

121- Who has the final authority for disposition of an aircraft?

- A) Pilot-in-command
- B) In-flight security
- C) Pilot
- D) Crew member

122- What information shall be study carefully by pilot-in-command before beginning a flight as pre-flight action?

- A) Current weather report
- B) Forecast
- C) Fuel requirement
- D) All answers are correct

123- Which one is considered as minima for VMC?

- A) Flight visibility 5 Km / distance from cloud 1500 ft horizontally, 1000 M vertically
- B) Flight visibility 5 Km/ distance from cloud 1500 M horizontally, 1000 ft vertically
- C) Flight visibility 5 Km/ distance from cloud 1000 M horizontally,1500 ft vertically
- D) Flight visibility 5 Km / distance from cloud 1000 ft horizontally ,1500 M vertically

124- Which lights of the preceding aircraft will be observed by the overtaking aircraft?

- A) Port
- B) Starboard
- C) Rear
- D) All answers are correct

125- Aerodrome traffic includes all traffic:

- A) On the movement area.
- B) On the maneuvering area of an aerodrome.
- C) Flying in the vicinity of an aerodrome.
- D) Both B and C are correct.

126- Air traffic advisory service is provided within advisory airspace to ensure separation between:

- A) Aircraft which are operating on IFR flight plans.
- B) Aircraft which are operating on special VFR and VFR flight plans.
- C) Aircraft which are operating on VFR and IFR flight plans.
- D) Aircraft which are operating as special VFR.

127- is provided to notify appropriate organizations regarding aircraft in need of search and rescue service.

- A) Advisory service.
- B) Alerting service.
- C) Area control service.
- D) Surveillance service.

128- A controlled airspace extending upwards from a specified limit above the earth is called a:

- A) Control zone.
- B) Control area.
- C) Control center.
- D) Terminal control area.

129- A controlled airspace extending upwards from the surface to the specified limit is:

- A) terminal control area.
- B) Control area.
- C) Control zone.
- D) Control center.

130- The estimated time required from take-off to arrive over the destination aerodrome is called:

- A) The total estimated elapsed time.
- B) The estimated flight time.
- C) The estimated off-block time.
- D) The estimated en-route time.

131- is responsible for the operation of the aircraft in accordance with the rules of the air.

- A) The air traffic control unit.
- B) The pilot-in-command.
- C) The operation manager.
- D) The person manipulating the controls.

132- Who has the final authority as to the disposition of the aircraft?

- A) The chief pilot.
- B) The flight operations department.
- C) The air traffic controller.
- D) The pilot-in-command.

133- What separation shall be maintained from the flight leader by each aircraft in a formation flight?

- A) A distance not exceeding 500 meters laterally and longitudinally and 30 meters vertically.
- B) A distance not exceeding 1000 meters laterally and longitudinally and 100 meters vertically.
- C) A distance not exceeding 0.5 NM laterally and longitudinally and 100 feet vertically.
- D) A distance of 1 km laterally and longitudinally and 30 feet vertically.

134- When two aircraft are approaching head-on or nearly so and there is a danger of collision, what action shall be take place by the pilots?

- A) Both aircraft shall alter their headings to the left.
- B) Both aircraft shall alter their headings to the right.
- C) Both aircraft must make a climbing turn to the left.
- D) Both aircraft must make a climbing turn to the right.

135- What action is required when two aircraft of the same category are converging at approximately the same level?

- A) Both aircraft must alter their headings to the right.
- B) The faster aircraft shall give way.
- C) The aircraft that has the other on its right shall give way.
- D) The aircraft that has the other on its left shall give way.

136- Which aircraft has the right-of-way when they are converging?

- A) Airplane.
- B) Balloon.
- C) Glider.
- D) Airship.

137- Which of the following converging aircraft has the right-of-way?

- A) Aircraft towing another aircraft.
- B) Airship.
- C) Rotorcraft.
- D) Airplane.

138- An airplane and a glider are converging. The glider has the airplane on its right. Which aircraft has the right of way?

- A) Both should alter their headings to the right.
- B) The glider.
- C) The airplane.
- D) Both should alter their headings to the left.

139- Which of the following statements concerning the right-of-way is correct when two or more heavier-than-air aircraft are approaching an aerodrome for the purpose of landing?

- A) Aircraft at the lower level shall give way to the aircraft at the higher level.
- B) Aircraft at the higher level shall give way to the aircraft at the lower level.
- C) An aircraft on final approach shall give way to an aircraft on downwind leg.
- D) Towing aircraft has right of way than lower aircraft.

140- Which lights must be displayed by all aircraft in flight between sunset and sunrise:

- A) Navigation lights and anti-collision lights.
- B) Anti-collision lights and landing lights
- C) Navigation lights and landing lights.
- D) Strobe light and landing light.

141- Unless otherwise prescribed by the appropriate ATS authority, a flight plan for a flight to be provided with air traffic control service or air traffic advisory service shall be submitted:

- A) At least 15 minutes before departure.
- B) At least 30 minutes before departure.
- C) At least 60 minutes before departure.
- D) At least 90 minutes before departure.

142- When operating under visual flight rules in class D airspace at altitudes above 10000 feet AMSL, you must maintain a vertical distance of at least from clouds.

- A) 1500 feet
- B) 300 feet
- C) 1000 feet
- D) 1000 meters

143- When flying under visual flight rules in class C airspace at altitudes below 10000 feet AMSL and above 3000 feet AMSL, or 1000 feet above terrain, whichever is the higher, you must maintain a horizontal distance of at least from clouds.

- A) 5 kilometers.
- B) 1500 meters.
- C) 1000 feet.
- D) 2000 feet.

144- To fly under VFR in class D airspace at or below 3000' AMSL, or 1000 feet above terrain, whichever is the higher, the flight visibility must be at least:

- A) 5 kilometers.
- B) 5 nautical miles.
- C) 8000 meters.
- D) 1500 meters.

145- To fly under VFR in class G airspace at and below 3000' feet AMSL or 1000 feet above terrain, whichever is the higher, you must:

- A) Maintain a horizontal distance of at least 1500 meters from clouds.
- B) Maintain a vertical distance of at least 1500 meters from the clouds.
- C) Maintain a horizontal distance of at least 1500 feet from clouds.
- D) Remain clear of clouds and insight of the surface.

146- To fly under VFR in class C airspace at and above 10000 feet AMSL, the flight visibility must be at least:

- A) 5 KM.
- B) 8 KM.
- C) 1500 meters.
- D) 3000 meters.

147- What is the required minimum distance from clouds for VFR flights in class G airspace at and above 10000 feet MSL?

- A) 1500 meters horizontally, and 300 feet vertically from clouds.
- B) 1500 feet vertically, and 1000 feet horizontally from clouds.
- C) Remain clear of clouds and insight of the surface.
- D) 1500 meters horizontally, and 1000 feet vertically from the clouds.

148- Except when a clearance is obtained from an air traffic control unit, no VFR flight may take-off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or traffic pattern when:

- A) The ceiling is less than 1000 ft, and the ground visibility is less than 3 km.
- B) The ceiling is less than 1500 ft, and the ground visibility is less than 5 statute miles.
- C) The ceiling is less than 1500 ft, and the ground visibility is less than 5 km.
- D) The ceiling is less than 450 ft, and the ground visibility is less than 5 km.

149- Unless authorized by the appropriate ATS authority, VFR flights shall not be operated:

- A) Above FL200, at transonic and supersonic speeds.
- B) Above FL200, at subsonic and transonic speeds.
- C) Above FL180, at transonic and supersonic speeds.
- D) Above FL290, at transonic and supersonic speeds.

150- You may not fly over any congested area of a city, town, or settlement at a height from which it would be impossible to land without undue hazard to persons or property on the surface in the event of an emergency arising, except:

- A) When necessary for take-off or landing.
- B) When trying to remain clear of clouds and in sight of surface.
- C) When you receive a logbook endorsement from your instructor.
- D) When you receive visual ground signal from tower

151- Except when taking off or landing, or except by permission from the appropriate authority, an aircraft may not fly over the congested areas of cities, towns, or settlements or over an open-air assembly of persons at a height less than above the highest obstacle.

- A) 300 feet
- B) 1500 feet
- C) 500 feet
- D) 1000 feet

152- Flight under SVFR is only permitted within:

- A) A Terminal Control Area.
- B) A Control Zone.
- C) An Aerodrome Traffic Zone.
- D) An ATS route.

153- A Control Area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes is known as:

- A) an Aerodrome traffic zone
- B) a Control Zone
- C) a Terminal Control Area
- D) an airway

154- When QFE is set on the altimeter, the vertical position of the aircraft is expressed in terms of:

- A) Altitude.
- B) Height.
- C) Flight level.
- D) Elevation.

155- The vertical position of the aircraft during climb is expressed in terms of until reaching the transition altitude.

- A) Height.
- B) Altitude.
- C) Flight level.
- D) Elevation.

156- When climbing through the transition layer, the reference for the vertical position of the aircraft should be changed from to

- A) Flight levels – altitudes.
- B) Altitudes – height.
- C) Altitudes – flight levels.
- D) Transition layer – altitudes.

157- During the approach to land, you initiate your descent below transition level with the altimeter subscale set to:

- A) 1013.2 hPa.
- B) The QNH.
- C) The QFE.
- D) 29.82 InHg.

158- The vertical position of aircraft during approach shall be controlled by reference to until reaching the transition level and below which vertical positioning is controlled by reference to

- A) Flight levels – height.
- B) Altitudes – flight levels.
- C) Flight levels – altitudes.
- D) flight level – 1013.2 hPa

159- What is the minimum clearance of Iranian ATS routes above the highest obstacle within the area concerned?

- A) 2000 ft.
- B) 1500 ft.
- C) 1500 M.
- D) 2500 ft.

160- Which signal shall be said by an aircraft when it has a very urgent message regarding another aircraft which is in fire?

- A) Mayday
- B) PANPAN
- C) XXX
- D) SOS

161- When an aircraft flying on a route with magnetic track of 315 what shall be its assign flight level (non RVSM airspace)?

- A) 310
- B) 320
- C) 330
- D) 340

162- What will be the cruising level of an en-route flight, when it is flying below the lowest usable flight level:

- A) Altitude
- B) Height
- C) Flight level
- D) Elevation

163- Which of following aircraft on the final stage of landing, has the right of way?

- A) Emergency
- B) Lower
- C) Faster
- D) Nearer

164- Which light shall be displayed by an airplane for the purpose of indication of relative path?

- A) Anti-collision
- B) Landing
- C) Navigation
- D) Beacon

165- Who shall be permitted to switch off the any flashing light?

- A) Pilot-in-command
- B) Operator
- C) ATC
- D) None

166- When the revised estimated time shall be notified to ATS unit?

- A) It is found that the error of estimate time to be exceed 5 min
- B) It is found that the error of estimate to be exceed time 1 min
- C) It is found that the error of estimate to be exceed time 2 min
- D) It is found that the error of estimate to be exceed time 4 min

167- Above which flight level IFR flight is compulsory?

- A) 30
- B) 90
- C) 10
- D) 200

168- The min vertical and horizontal distance from cloud for VFR flight within a controlled airspace in order is?

- A) 1500 ft, 1000 M
- B) 1500 M, 1000 M
- C) 1000 ft, 1500 M
- D) 1000 ft, 1500 ft

169- Advisory service shall be provided in accordance with?

- A) Clearance
- B) Suggest and advise
- C) Traffic information
- D) B & C are correct

170- An aircraft is holding within transition layer, what shall be the term of its level?

- A) Flight level
- B) Height
- C) Altitude
- D) None

171- The actual time of leaving the holding fix depends on?

- A) EAT
- B) Approach clearance
- C) ETA
- D) TEET

172- How much of the sky shall be covered by cloud when you consider it as ceiling?

- A) 1/2 sky
- B) 1/3 sky
- C) 2/3 sky
- D) 4/8 sky

173- What action shall be taken by an overtaking aircraft?

- A) Alter its heading to the left.
- B) Alter its level
- C) Alter its heading to the right
- D) Alter its speed

174- Which lights may be displayed, when there is no adequate illumination to indicate aircraft structure?

- A) Landing lights
- B) Navigation lights
- C) Anti-collision lights
- D) Strobe lights

175- How long before departure the flight plan shall be submitted?

- A) 60 min
- B) at least 60 min
- C) 30 min
- D) at least 30 min

176- To which flight plan shall an aircraft shall adhere itself?

- A) Current flight plan
- B) Operational flight plan
- C) Filed flight plan
- D) Repetitive flight plan

177- Who has the responsibility for operation of an aircraft in accordance with rules of the air?

- A) Operator
- B) ATC
- C) Pilot-in-command
- D) Pilot at flight control

178- The lowest flight level for VFR is:

- A) 200
- B) 35
- C) 45
- D) 50

179- What shall be the minimum height of, a VFR flight over an open air assembly of person?

- A) 500 ft
- B) 1000 ft
- C) 600 M
- D) 1500 ft

180- When an IFR may cancel its IFR flight?

- A) It is in VMC
- B) Encountering VMC
- C) Uninterrupted VMC
- D) For a reasonable period in uninterrupted VMC

181- What signal shall be made by radio, when the aircraft is in distress?

- A) MAYDAY
- B) PANPAN
- C) XXX
- D) SOS

182- For which flight, the operator shall submit RPL?

- A) VFR
- B) Controlled flight
- C) IFR
- D) All answers are correct

183- What is the minimum height of VFR, over congested area?

- A) 500 ft
- B) 1000 ft
- C) 1500 ft
- D) 2000 ft

184- Aerodrome traffic means:

- A) All traffic on the landing area + all aircraft
- B) All traffic on the movement area + all aircraft in vicinity of an aerodrome
- C) All traffic on the maneuvering area
- D) All traffic on the maneuvering area + all aircraft in vicinity of an aerodrome

185- What is the minimum ceiling for a VFR at controlled aerodrome?

- A) 1000 ft
- B) 1500 ft
- C) 2000 ft
- D) 2500 ft

186- What is the first IFR flight level above FL290, if magnetic track is 105 (RVSM airspace)?

- A) 300
- B) 310
- C) 320
- D) 330

187- What signal shall be used by an emergency aircraft on radio?

- A) SOS
- B) Emergency
- C) Distress
- D) MAYDAY

188- Which light fitted on aircraft may be switched-off by pilot?

- A) Navigation lights
- B) Flashing lights
- C) Strobe lights
- D) Landing

189- According to which of the following basis the advisory service shall not be provided?

- A) advice
- B) clearance
- C) suggest
- D) traffic information

190- Which signal may be initiated by, an intercepted aircraft which is in distress?

- A) Irregular flashing landing lights
- B) Irregular flashing navigation lights
- C) Regular flashing all lights
- D) Irregular flashing all available lights

191- What SSR code shall be selected by, a hijacked airplane?

- A) 7700
- B) 7600
- C) 7500
- D) 7400

192- At least how long before departure a controlled VFR flight shall submit a flight plan?

- A) 30 min
- B) 10 min
- C) 60 min
- D) 45 min

193- Under which condition the pilot-in-command of an aircraft may depart from rules of the air?

- A) VMC
- B) Interest of safety
- C) IMC
- D) Formation

194- Which of the following aircraft on the final stage of landing has the right of way?

- A) Lower airplane
- B) Faster airplane
- C) Glider
- D) Higher airplane

195- Ceiling is the base of lowest layer of cloud covering more than half of the sky below?

- A) 6000 ft
- B) 2000 ft
- C) 2000 M
- D) 20000 ft

196- When aircraft is running its engine on the movement area, shall display it's?

- A) Landing light
- B) Anti-collision light
- C) Position light
- D) Landing light

197- When an airplane and a balloon converging, which one has right of way:

- A) Balloon
- B) Airplane
- C) Right side aircraft
- D) Left side aircraft

198- When an aircraft has an urgent message shall say?

- A) MAYDAY
- B) PANPAN
- C) XXX
- D) SOS

199- The first IFR FL above FL 290 on a 020 magnetic heading is (RVSM airspace)?

- A) 330
- B) 310
- C) 300
- D) 320

200- The first west bound FL above FL 280 is (RVSM airspace)?

- A) 300
- B) 320
- C) 290
- D) 310

201- The aircraft has the right of way shall maintain its:

- A) Heading.
- B) Speed.
- C) Level.
- D) A & B are correct.

202- When communication facility at an aerodrome is not available, arrival report shall be made?

- A) Before landing
- B) After landing
- C) 10 minutes after landing
- D) None

203- Which of the ICAO annexes talks about the rules of the air?

- A) Annex 8
- B) Annex 3
- C) Annex 2
- D) Annex 11

204- Cargo sling loads by helicopters require air taxiing in order to reduce ground effect turbulence with a height of:

- A) 25 ft
- B) Above 25 ft
- C) Less than 25 ft
- D) None

205- Authorization for an aircraft to proceed under condition specified by air traffic control unit is:

- A) Flight permission
- B) Authorized flight
- C) Controlled flight
- D) ATC clearance

206- Which one are the objectives of air traffic control service:

- A) Prevent collision between aircraft
- B) Prevent collision between aircraft and obstruction
- C) Expediting and maintaining an orderly flow of air traffic
- D) All answers are correct

207- What are the uncontrolled airspaces?

- A) F
- B) G
- C) D, E
- D) G, F

208- How many airspaces are assigned for Iran FIR?

- A) 7
- B) 3
- C) 5
- D) 4

209- The estimated time at which the aircraft will commence movement associated with departure is:

- A) EOBT
- B) EET
- C) TEET
- D) ETA

210- Flight visibility is the visibility forward from:

- A) Cockpit of an aircraft on the ground
- B) Cockpit of an aircraft in flight
- C) RVR
- D) All answers are correct

211- IMC is a meteorological condition.....

- A) Equal to VMC
- B) Less than minima for VMC
- C) More than minima for VMC
- D) B and C are correct

212- Who is safety - sensitive personnel?

- A) Crew member
- B) Aircraft maintenance
- C) Air traffic controller
- D) All answers are correct

213- Runway- holding position is a designated position intended to.....

- A) Protect runway
- B) Protect an obstacle limitation surface
- C) Protect an ILS/MLS critical/sensitive area
- D) All answers are correct

214- Traffic avoiding advice will be provided by:

- A) Operator
- B) Pilot-in-command
- C) ATS units
- D) flight dispatcher

215- What is the intent of traffic avoidance advice?

- A) To make large separation
- B) To sequence the traffic
- C) To apply priority
- D) To avoid a collision

216- The cruising level of an aircraft shall be in the term of flight level:

- A) At lowest usable flight level
- B) Above lowest usable flight level
- C) At or above lowest usable flight level
- D) None

217- The cruising level of an aircraft shall be in the term of altitude:

- A) At lowest usable flight level
- B) Below the lowest usable flight level
- C) At or below transition altitude
- D) B and C are correct

218- Which one is not correct?

- A) Emergency aircraft shall have priority to other aircraft
- B) Aircraft landing Shall have priority to departing aircraft
- C) The higher aircraft shall have priority to lower aircraft
- D) The urgency aircraft shall have priority to other aircraft

219- Anti-collision and navigation light shall be displayed on aircraft during:

- A) Sunset to sunrise
- B) Sunrise to sunset
- C) Any other time prescribed by appropriate ATS authority
- D) A and C are correct

220- What is the basis of expressing time in aeronautical operations?

- A) UTC
- B) Local
- C) UTC and local
- D) GMT

221- The accuracy of time in data link communication is expected to be within?

- A) 5 second
- B) 1 second
- C) 30 second
- D) 10 second

222- The obtaining of time check shall be made:

- A) Prior to operating a controlled flight
- B) The other times during flight as may be necessary
- C) A and B are correct
- D) During night flight

223- An aircraft which is being subjected to unlawful interference, shall:

- A) Squawk 7600
- B) Squawk 7500
- C) Squawk 2000
- D) Squawk ATC assigned code

224- An aircraft experiencing radio communication failure shall squawk its transponder to:

- A) 7700
- B) 7600
- C) 7500
- D) 7400

225- An intercepted aircraft shall set it's transponder to:

- A) 7700
- B) 2000
- C) 7600
- D) 7400

226- Which one is distress signal?

- A) MAYDAY
- B) PANPAN
- C) XXX in data link
- D) All answers are correct

227- Inadvertent changes consisting deviation of time estimate shall be reported to ATS units.

- A) ± 5 min
- B) In excess of 2 min
- C) ± 1 min
- D) Less than 2 min

228- Which one is the urgency signal code?

- A) SOS
- B) PANPAN
- C) MAYDAY
- D) Parachute flare red light

229- Within which Iranian controlled airspace the VFR, is subject to control?

- A) Airway.
- B) TMA.
- C) CTR.
- D) "A & B & C" but not above FL200.

230- VFR flight is subject to control, when it is operating within:

- A) Control zone.
- B) Controlled airspace
- C) Airway.
- D) In class B,C,D

231- ETA for IFR flight without navigation aids is:

- A) Estimated to arrive over facility intended for departure.
- B) Estimated to arrive over facility intended for instrument approach procedure.
- C) Estimated to arrive over aerodrome.
- D) Estimated to arrive over initial approach fix

232- An aircraft is operating on or in vicinity of an aerodrome shall make all turns to the:

- A) Left.
- B) Left unless instructed by ATC.
- C) Right.
- D) Right unless otherwise instructed.

233- Flight plan submission during flight shall be made at least:

- A) 10 minutes before crossing airway or advisory route.
- B) 10 minutes before entering control area or advisory area.
- C) 10 minutes prior departure.
- D) A and B are correct.

234- When arriving VFR aircraft entering Esfahan CTR and reported visibility is 3000 m, it shall:

- A) Leave CTR.
- B) Return to departure point.
- C) Request SVFR.
- D) A or B are correct.

235- When a controlled flight lost its radio in VMC shall:

- A) Continue VMC to destination.
- B) Continue VMC to land at nearest and suitable aerodrome.
- C) Report its arrival by expeditious means to ATC unit.
- D) B & C are correct.

236- Controlled radio failure aircraft in IMC may be landed within:

- A) 30 minutes after ETA.
- B) 30 minutes after acknowledge EAT.
- C) A and B whichever is later.
- D) A or B whichever is later.

237- Steady red signal to an aircraft on the ground means:

- A) Cleared to taxi.
- B) Cleared for take-off.
- C) STOP.
- D) Return for landing.

238- When an aircraft wishes to inform that a ship within sight is in fire shall say:

- A) SOS.
- B) MAYDAY.
- C) PANPAN.
- D) XXX.

239- Cruising level is a level maintained during:

- A) Flight time.
- B) Flight duty time.
- C) Significant portion of flight.
- D) Take-off or landing.

240- Which annexes contains the standard and recommended practices for licensing crew members?

- A) Annex 1.
- B) Annex 2.
- C) Annex 6.
- D) Annex 18.

241- When a controlled flight lost its radio in IMC the reference of speed is based on:

- A) Proceed according to flight plan.
- B) Proceed according to current flight plan.
- C) Proceed according to operational flight plan.
- D) Proceed according to field flight plan.

242- Which SSR code shall be selected by a radio failure aircraft?

- A) 7700
- B) 7600
- C) 7500
- D) 7400

243- The minimum ceiling require for a VFR flight for takeoff from a controlled aerodrome is:

- A) 1500 m.
- B) 1500 ft.
- C) 1000 m.
- D) 1000 ft.

244- The cruising level of an aircraft below lowest usable flight level is called:

- A) Flight level.
- B) Altitude.
- C) Elevation.
- D) None.

245- What is the minimum safe altitude above the highest obstacle that must be maintained over congested areas?

- A) 500 ft.
- B) 1000 ft.
- C) 1500 ft.
- D) 2000 ft.

246- Under which condition an aircraft may be hold at a level within transition layer?

- A) When pilot set's QNH.
- B) When pilot set's QFE.
- C) When pilot set's QNE.
- D) None.

247- Which of the following aircraft on the final stage of landing has the right of way?

- A) Lower aircraft.
- B) Faster aircraft.
- C) Glider.
- D) Higher aircraft.

248- The elevation at highest obstacle on an airway is 7654 ft. If magnetic track of mentioned route is 256, what is the lowest usable flight level based on IRAN criteria?

- A) FL110.
- B) FL120.
- C) FL130.
- D) None.

249- According which ICAO annexes the flight crew members may be licensed?

- A) Annex 6.
- B) Annex 11.
- C) Annex 2.
- D) Annex 1.

250- What is the first IFR flight level above FL290, if magnetic track is 105 (Non-RVSM)?

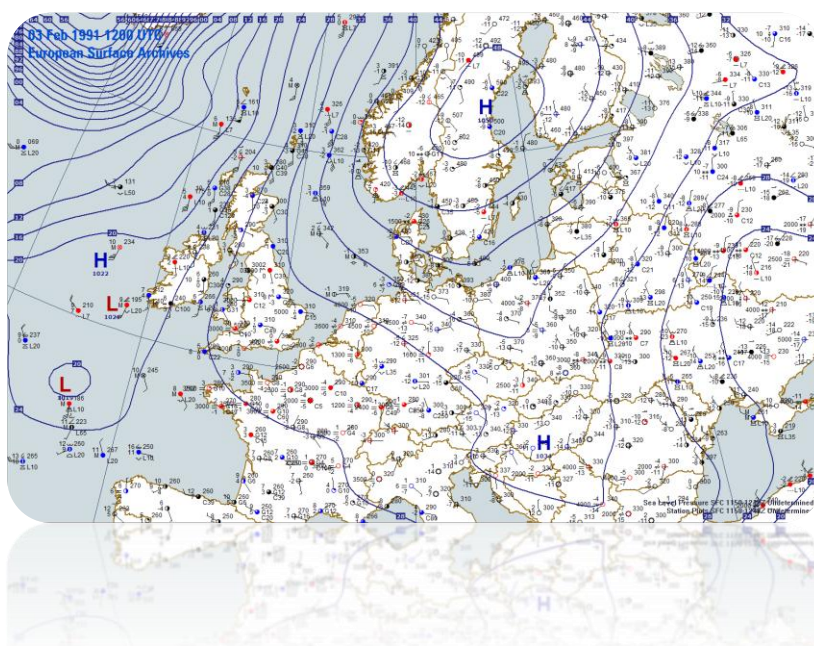
- A) 300
- B) 310
- C) 320
- D) 330

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	B	41	A	81	C	121	A
2	B	42	D	82	A	122	D
3	D	43	C	83	D	123	B
4	C	44	D	84	B	124	C
5	D	45	D	85	D	125	D
6	A	46	A	86	C	126	A
7	D	47	A	87	C	127	B
8	C	48	A	88	C	128	B
9	A	49	D	89	D	129	C
10	C	50	D	90	D	130	A
11	A	51	C	91	A	131	B
12	D	52	A	92	D	132	D
13	D	53	B	93	C	133	C
14	B	54	A	94	A	134	B
15	A	55	C	95	B	135	C
16	B	56	C	96	B	136	B
17	B	57	D	97	A	137	A
18	D	58	B	98	C	138	B
19	A	59	D	99	A	139	B
20	C	60	D	100	A	140	A
21	D	61	D	101	A	141	C
22	C	62	A	102	C	142	C
23	B	63	A	103	C	143	B
24	B	64	D	104	A	144	A
25	A	65	C	105	A	145	D
26	B	66	C	106	D	146	B
27	D	67	A	107	C	147	D
28	C	68	A	108	C	148	C
29	A	69	C	109	A	149	A
30	B	70	B	110	A	150	A
31	C	71	B	111	C	151	D
32	B	72	A	112	C	152	B
33	D	73	B	113	D	153	C
34	C	74	A	114	A	154	B
35	C	75	D	115	A	155	B
36	D	76	A	116	D	156	C
37	A	77	D	117	D	157	B
38	B	78	B	118	D	158	C
39	D	79	A	119	A	159	D
40	C	80	D	120	C	160	B

Question	Answer	Question	Answer	Question	Answer	Question	Answer
161	A	201	D	241	D		
162	A	202	A	242	B		
163	A	203	C	243	B		
164	C	204	B	244	B		
165	A	205	D	245	B		
166	C	206	D	246	D		
167	D	207	D	247	C		
168	C	208	D	248	B		
169	D	209	A	249	D		
170	D	210	B	250	D		
171	B	211	B				
172	C	212	D				
173	C	213	D				
174	B	214	C				
175	B	215	D				
176	A	216	C				
177	C	217	D				
178	B	218	C				
179	B	219	D				
180	D	220	A				
181	A	221	B				
182	C	222	C				
183	B	223	B				
184	D	224	B				
185	B	225	A				
186	B	226	A				
187	D	227	B				
188	B	228	B				
189	B	229	D				
190	D	230	D				
191	C	231	C				
192	C	232	B				
193	B	233	D				
194	C	234	C				
195	D	235	D				
196	B	236	D				
197	A	237	C				
198	B	238	C				
199	B	239	C				
200	A	240	A				

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Annex 3



➤ Annex 3 – 18th, AMDT 76

1- What is the meaning of the expression "FEW"?

- A) 3 - 4 oktas of cloud cover.
- B) 1 - 2 oktas of cloud cover.
- C) 5 - 7 oktas of cloud cover.
- D) 0 - 1 oktas of cloud cover.

2- What is the meaning of the abbreviation "BKN"?

- A) 6 - 8 oktas.
- B) 3 - 4 oktas.
- C) 5 - 7 oktas.
- D) 8 oktas.

3- The meaning of RVR is:

- A) Crosswind component.
- B) Runway visual range.
- C) Meteorological visibility.
- D) Braking action.

4- What is the meaning of the abbreviation "SKC"?

- A) 0 oktas cloud cover.
- B) 1 - 2 oktas cloud cover.
- C) 3 - 4 oktas cloud cover.
- D) Abbreviation "SKC" is not associated with clouds.

5- What is the meaning of the abbreviation "OVC"?

- A) 0 oktas cloud cover.
- B) 3 - 4 oktas cloud cover.
- C) 5 - 7 oktas cloud cover.
- D) 8 oktas cloud cover.

6- Among the ten groups of clouds, the following two are mentioned specifically in meteorological reports and forecasts intended for aviation:

- A) Altocumulus and stratus.
- B) Cirrostratus and cumulonimbus.
- C) Cumulonimbus and towering cumulus.
- D) Cumulonimbus and nimbostratus.

7- What are the colors of stationary front is shown on a surface chart?

- A) Violet and red
- B) Blue and violet
- C) Red and blue
- D) Red and green

8- What is the color of warm front is shown on a surface chart?

- A) Red
- B) Green
- C) Blue
- D) Violet

9- Runway visual range can be reported in:

- A) A TAF.
- B) A METAR.
- C) A SIGMET.
- D) Both a TAF and a METAR.

10- When will the surface wind in a METAR record as gust factor?

- A) When gusts are at least 10 knots above the mean wind speed.
- B) When gusts are at least 15 knots above the mean wind speed.
- C) With gusts of at least 25 knots.
- D) With gusts of at least 35 knots.

11- Which of the following weather reports could be, in accordance with the regulations, abbreviated to CAVOK?

- A) 29010KT 9999 SCT045TCU 16/12 Q1015 RESHRA NOSIG=
- B) 24009KT 6000 RA SCT010 OVC030 12/11 Q1007 TEMPO 4000 BR =
- C) 15003KT 9999 BKN100 17/11 Q1024 NOSIG =
- D) 04012G26KT 9999 BKN030 11/07 Q1024 NOSIG =

12- Which of the following phenomena should be described as precipitation at the time they are observed?

- A) TS
- B) SA
- C) DZ
- D) SQ

13- What does the abbreviation "NOSIG" mean?

- A) No significant changes.
- B) No report received.
- C) No weather related problems.
- D) Not signed by the meteorologist.

14- A SPECI is:

- A) An aviation routine weather report.
- B) An aviation selected special weather report.
- C) A warning for special weather phenomena.
- D) A forecast for special weather phenomena.

15- What does the term METAR signify?

- A) A METAR is a flight forecast, issued by the meteorological station several times daily.
- B) A METAR is a warning of dangerous meteorological conditions within a FIR.
- C) A METAR signifies the actual weather report at an aerodrome and is generally issued in half-hourly or hourly intervals.
- D) A METAR is a landing forecast added to the actual weather report as a brief prognostic report.

16- ATIS information contains:

- A) Operational information and if necessary meteorological information.
- B) Only meteorological information.
- C) Meteorological and operational information.
- D) Only operational information.

17- Refer to the following TAF for Mehrabad airport:

**OIII 061019 20018G30KT 9999 -RA SCT050 BKN080 TEMPO 1113 23012KT 6000
-DZ BKN015 BKN030 BECMG 1518 23020G35KT 4000 RA OVC010=**

The lowest cloud base forecast for Mehrabad (ETA at 12:00 UTC) is:

- A) 1000 ft.
- B) 1500 ft.
- C) 1500 m
- D) 5000 ft.

18- What is the wind direction reference in METAR?

- A) Magnetic
- B) True
- C) Grid
- D) Compass

19- Which of the following phenomena should be described as precipitation at the time they are observed?

- A) +SHSN
- B) VA
- C) BR
- D) MIFG

20- Which of the following weather reports is a warning of conditions that could be potentially hazardous to aircraft in flight?

- A) SPECI
- B) ATIS
- C) SIGMET
- D) TAF

21- The wind direction in a TAFOR is measured relative to:

- A) Compass North.
- B) Magnetic North.
- C) True North.
- D) Grid North.

22- A METAR message is valid:

- A) At the time of observation.
- B) For 2 hours.
- C) For the hour following the observation.
- D) For 9 hours.

23- In a METAR message, abbreviations "BR" and "HZ" mean respectively:

- A) BR = mist, HZ = widespread dust.
- B) BR = fog, HZ = haze.
- C) BR = mist, HZ = smoke.
- D) BR = mist, HZ = haze.

24- In a METAR message, the wind group is 23010MPS. This means:

- A) Wind from 230° magnetic at 10 miles per hour.
- B) Wind from 230° true at 10 miles per hour.
- C) Wind from 230° magnetic at 20 knots.
- D) Wind from 230° true at 20 knots.

25- In the METAR code the abbreviation "VC" indicates:

- A) Volcanic ash.
- B) Present weather within the approach area.
- C) Present weather within a range of 8 km, but not at the airport.
- D) Present weather at the airport.

26- What is the reference of visibility in METAR?

- A) Nautical Mile.
- B) Meter or Kilometer.
- C) Statute Mile.
- D) Feet.

27- The following weather message is a:

**OIIP 241200Z 241322 VRB03KT 1500 BR OVC004 BECMG 1517 OOOO0KT 0500 FG VV002
TEMPO 2022 0400 FGVV001**

- A) METAR.
- B) 24 hour TAF.
- C) SPECI.
- D) 9 hour TAF.

28- The term CAVOK is used when weather conditions are:

- A) 9999, CB, NOSIG.
- B) 9000, SKC, NOSIG.
- C) 8000, HAZARDOUS WX NIL, NOSIG.
- D) 9999. NSC, NSW.

29- What does the METAR code "R24R/P1500" mean?

- A) Snow clearance in progress on RUNWAY 24-Right, use runway length 1500 meters.
- B) RVR RUNWAY 24-Right is below 1500 meters.
- C) RVR RUNWAY 24-Right is above 1500 meters.
- D) RVR RUNWAY 24-Right is 1500 meters.

30- Which of the following is a landing forecast?

- A) METAR.
- B) TAF.
- C) SPECI.
- D) METAR with TREND.

31- What will be the effect on the reading of an altimeter of an aircraft parked on the ground as an active cold front is approaching and then passing?

- A) It will first increase then decrease.
- B) It will remain unchanged.
- C) It will first decrease then increase.
- D) It will fluctuate up and down by about ± 50 feet.

32- RVR is measured when meteorological visibility falls below:

- A) 500 m
- B) 1500 m
- C) 2000 m
- D) 2500 m

33- On an aerodrome, when a warm front is approaching:

- A) QFE increases and QNH decreases.
- B) QFE and QNH increase.
- C) QFE and QNH decrease.
- D) QFE decreases and QNH increases.

34- In which of these temperature bands is ice most likely to form on the aircraft's surface?

- A) -20°C to -35°C .
- B) $+10^{\circ}\text{C}$ to 0°C .
- C) 0°C to -10°C .
- D) -35°C to -50°C .

35- Which of the following conditions is most likely to cause airframe icing?

- A) PE
- B) GR
- C) SHSN
- D) +FZRA

36- The unit of pressure most commonly used in meteorology is:

- A) Kg/cm²
- B) lbs/in²
- C) hPa
- D) Tons/m²

37- At FL180, the air temperature is -35 °C. At this level density is:

- A) Unable to be determined without knowing the QNH.
- B) Greater than the density of the ISA atmosphere at FL180.
- C) Less than the density of the ISA atmosphere at FL180.
- D) Equal to the density of the ISA atmosphere at FL180.

38- An outside air temperature of -35°C is measured while cruising at FL200. What is the temperature deviation from the ISA at this level?

- A) 5 °C colder than ISA.
- B) 10 °C warmer than ISA.
- C) 5 °C warmer than ISA.
- D) 10 °C colder than ISA

39- The lowest assumed temperature in the International Standard Atmosphere (ISA) is:

- A) -44,7°C
- B) -273 °C
- C) -56,5°C
- D) -100 °C

40- In the International Standard Atmosphere, the decrease in temperature with height below 11 km is:

- A) 1 °C per 100 m.
- B) 0.65°C per 100 m.
- C) 0.5°C per 100 m.
- D) 0.6°C per 100 m.

41- If you are flying at FL100 in an air mass that is 10°C warmer than a standard atmosphere, what is the outside temperature likely to be?

- A) +15 °C
- B) +5 °C
- C) -10 °C
- D) -15 °C

42- The temperature at FL160 is -22°C and temperature at FL090 is based on the ICAO standard lapse rate, what is the difference temperature between them?

- A) -4°C
- B) -19 °C
- C) 0 °C
- D) +4 °C

43- The temperature at FL140 is -12°C. What will the temperature be at FL110 if the ICAO standard lapse rate is applied?

- A) -9 °C
- B) -18 °C
- C) -6 °C
- D) -15°C

44- The temperature at FL80 is +6 °C. What will the temperature be at FL130 if the ICAO standard lapse rate is applied?

- A) +2°C
- B) -6°C
- C) 0°C
- D) -4°C

45- The temperature at FL 110 is -5 °C. What will the temperature be at FL050 if the ICAO standard lapse rate is applied?

- A) -3 °C
- B) +3 °C
- C) 0 °C
- D) +7 °C

46- The 0° isotherm is forecast to be at FL050. At what FL would you expect a temperature of -6°C?

- A) FL110
- B) FL020
- C) FL100
- D) FL080

47- If Shiraz reports a wind of 300°/12 kts on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground?

- A) 300/25 kts
- B) 230/30 kts
- C) 330/25 kts
- D) 270/20 kts

48- While flying at FL120, you notice an OAT of -2°C. At which altitude do you expect the freezing level to be?

- A) FL110
- B) FL130
- C) FL150
- D) FL090

49- What does the code "VV002" in METAR mean?

- A) Vertical visibility is 200 ft.
- B) Vertical visibility is 200 m.
- C) Vertical visibility is 20 ft.
- D) Vertical visibility is 20 m.

50- What is the gusty wind?

- A) Average wind speed change more than 5 knots in 10 minutes.
- B) Average wind speed change more than 10 knots in 10 minutes.
- C) Average wind speed change more than 15 knots in 10 minutes.
- D) Average wind speed change more than 20 knots in 10 minutes.

51- What does the code "VV///" in METAR mean?

- A) Sky is clear but visibility cannot determine.
- B) Sky is clear and visibility is unlimited.
- C) Sky is obscured and vertical visibility is not available.
- D) Sky is obscured and vertical visibility limits to 100 meter.

52- What does the code "PO" in METAR mean?

- A) Drizzle
- B) Dust storm
- C) Sand storm
- D) Dust devil

53- What does the code "FC" in METAR mean?

- A) Rain
- B) Water spout
- C) Tornado
- D) Funnel cloud

54- What does the code "IC" in METAR mean?

- A) Diamond dust
- B) Funnel cloud
- C) Snow grains
- D) Mist

55- Wind direction for METAR is the average wind direction that receives within last....

- A) 10 minutes
- B) 15 minutes
- C) 30 minutes
- D) 60 minutes

56- The variable wind for wind direction is express when wind direction change within last 10 min before observing weather.

- A) 30° or more
- B) 45° or more
- C) 60° or more
- D) 50° or more

57- Which one of following statement is correct about variable wind direction?

- A) 240V260
- B) 240V270
- C) 240V290
- D) 240V310

58- How can you identify wind speed is calm in METAR?

- A) WS is calm
- B) 00000
- C) CALM
- D) 11111

59- When the wind speed is variable?

- A) Wind speed is less than 5 knots
- B) Wind speed is less than 7 knots
- C) Wind speed is less than 3 knots
- D) Wind speed is less than 10 knots

60- "9999" in METAR is used when.....

- A) Visibility is 10 Km or more
- B) Visibility is 5 Km or more
- C) Visibility is 8 Km or more
- D) Visibility is 15 Km or more

61- What is the specification of CAVOK?

- A) Visibility is 10 Km or more.
- B) No cloud below 5000 Ft.
- C) No PPTN.
- D) All answers are correct.

62- What is the specification of CAVOK?

- A) Visibility is 10 Km or more.
- B) No significant cloud to restrict visibility less than 10 Km
- C) No CB
- D) All answers are correct

63- What is the specification of CAVOK?

- A) No CB
- B) No cloud below 5000 Ft.
- C) No PPTN
- D) All answers are correct

64- "R26L/P1200U" in METAR is shown the value of:

- A) Visibility
- B) RVR
- C) Ceiling
- D) Temperature

65- What is the "P" in RVR information that use for "R26L/P1200U"?

- A) RVR is more than 1200 Meters
- B) RVR is less than 1200 Meters
- C) RVR is no change but will be positive during next 10 minutes
- D) RVR is no change but will be positive during next 20 minutes

66- What is the "U" in RVR information that use for "R26L/P1200U"?

- A) Under
- B) Up
- C) No change
- D) Unlimited

67- What is the "N" in RVR information that use for "R26L/P1200N"?

- A) No change
- B) Down
- C) Up
- D) Negative

68- What is the limitation of visibility in Mist?

- A) Visibility more than 1000 m but less than 5000 m
- B) Visibility more than 1000 m but less than 6000 m
- C) Visibility more than 2000 m but less than 5000 m
- D) Visibility more than 2000 m but less than 6000 m

69- What is the limitation of visibility in Fog?

- A) Visibility more than 1000 m but less than 5000 m
- B) Visibility more than 1000 m but less than 6000 m
- C) Visibility more than 2000 m but less than 5000 m
- D) Visibility is equal or less than 1000 m

70- What does the code "SH" in METAR mean?

- A) Shower
- B) Rain
- C) Shallow fog
- D) Freezing rain

71- What does the code "HZ" in METAR mean?

- A) Fog
- B) Haze
- C) Dust
- D) Mist

72- Which of the following items are used in TREND?

- A) BECMG
- B) TEMPO
- C) FM
- D) A & B & C are correct

73- How can you identify temporary nature change in TREND information?

- A) It follows by word "FROM"
- B) It follows by word "TEMPO"
- C) It follows by word "BECMG"
- D) It follows by word "AT"

74- Terminal area forecast is an aerodrome weather forecast that cover an area about:

- A) 3NM
- B) 5NM
- C) 10NM
- D) 15NM

75- What is the validity of TAF when it issues every 3 hours?

- A) Less than 9 hours
- B) Less than 12 hours
- C) Less than 24 hours
- D) Less than 30 hours

76- What is the validity of TAF when it issues every 6 hours?

- A) Less than 9 hours
- B) Less than 12 hours
- C) 12 hours or more
- D) Less than 30 hours

77- What is the maximum validity of AIRMET?

- A) 6 hours
- B) 12 hours
- C) 24 hours
- D) 30 hours

78- What is the validity of SIGMET except special case such as volcanic ash cloud and tropical cyclones?

- A) 4 hours
- B) 9 hours
- C) 24 hours
- D) 30 hours

79- Which type of information is available in VOLMET?

- A) METAR
- B) SPECI
- C) TAF
- D) All answers are correct

80- Refer to METAR "OIFM 152200Z 00000KT 0100 FG SCT035 BKN100 M02/M02 Q1011 A2986" what is the wind speed?

- A) Calm
- B) 10 KTS
- C) 20 KTS
- D) 30 KTS

81- Refer to METAR "OIFM 152200Z 00000KT 0100 FG SCT035 BKN100 M02/M02 Q1011 A2986" what is the horizontal visibility?

- A) 1,000 m
- B) 100 m
- C) 3,500 m
- D) 2,200 m

82- Refer to METAR "OIFM 152200Z 00000KT 0100 FG SCT035 BKN100 M02/M02 Q1011 A2986" what is the dew point temperature?

- A) +2°C
- B) +5°C
- C) -2°C
- D) -5°C

83- Refer to METAR "OIII 151500Z 26010KT 0800 SN SCT035CB BKN100 00/M02 Q1015 A2988" what is the wind direction?

- A) 150°
- B) 100°
- C) 080°
- D) 260°

84- Refer to METAR "OIII 151500Z 26010KT 0800 SN SCT035CB BKN100 00/M02 Q1015 A2988" what is the height of ceiling?

- A) 1,000 ft.
- B) 100 ft.
- C) 3,500 ft.
- D) 10,000 ft.

85- Refer to METAR "OIII 151500Z 26010KT 0800 SN SCT035CB BKN100 00/M02 Q1015 A2988" what is the intensity of snow?

- A) Light
- B) Moderate
- C) Sever
- D) Heavy

86- Which information is contained in an AIRMET?

- A) Severe icing
- B) Severe turbulence
- C) Sand storm
- D) Wind speed 30 Kts or more at surface

87- "AIRMET" contains information which are potentially hazardous to

- A) Small aircraft
- B) Large aircraft
- C) Heavy aircraft
- D) All aircraft

88- "SIGMET" are issued for hazardous weather which is considered significant to:

- A) Large aircraft
- B) Small aircraft
- C) Heavy aircraft
- D) All aircraft

89- Which information is contained in a SIGMET?

- A) Severe icing
- B) Severe turbulence
- C) Sand storm
- D) All answers are correct

90- In a SIGMET what does "EMBD TSGR" stand for?

- A) Severe icing
- B) Severe turbulence
- C) Sand storm
- D) Embedded thunderstorm with hail

91- In METAR what does the code "VCTS –SHRA" stand for?

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Sand storm
- D) Embedded thunderstorm with hail

92- In METAR what does the code "BR" stand for?

- A) Severe icing
- B) Mist
- C) Sand storm
- D) Embedded thunderstorm with hail

93- In a forecast what does the code "GR" stand for?

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Hail
- D) Embedded thunderstorm with hail

94- In a forecast what does the code "+TSSNGR" stand for?

- A) Severe icing
- B) Thunderstorm with heavy snow and hail
- C) Hail
- D) Embedded thunderstorm with hail

95- In a forecast what does the code "DZ" stand for?

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Drizzle
- D) Embedded thunderstorm with hail

96- In a forecast what does the code "FU" stand for?

- A) Icing
- B) Thunderstorm in vicinity and light rain showers
- C) Hail
- D) Smoke

97- In a forecast what does the code "PL" stand for?

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Hail
- D) Ice pellet

98- In a forecast what does the code "SG" stand for?

- A) Severe icing
- B) Snow grains
- C) Hail
- D) Embedded thunderstorm with hail

99- In a forecast what does the code "SQ" stand for?

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Squall
- D) Embedded thunderstorm with hail

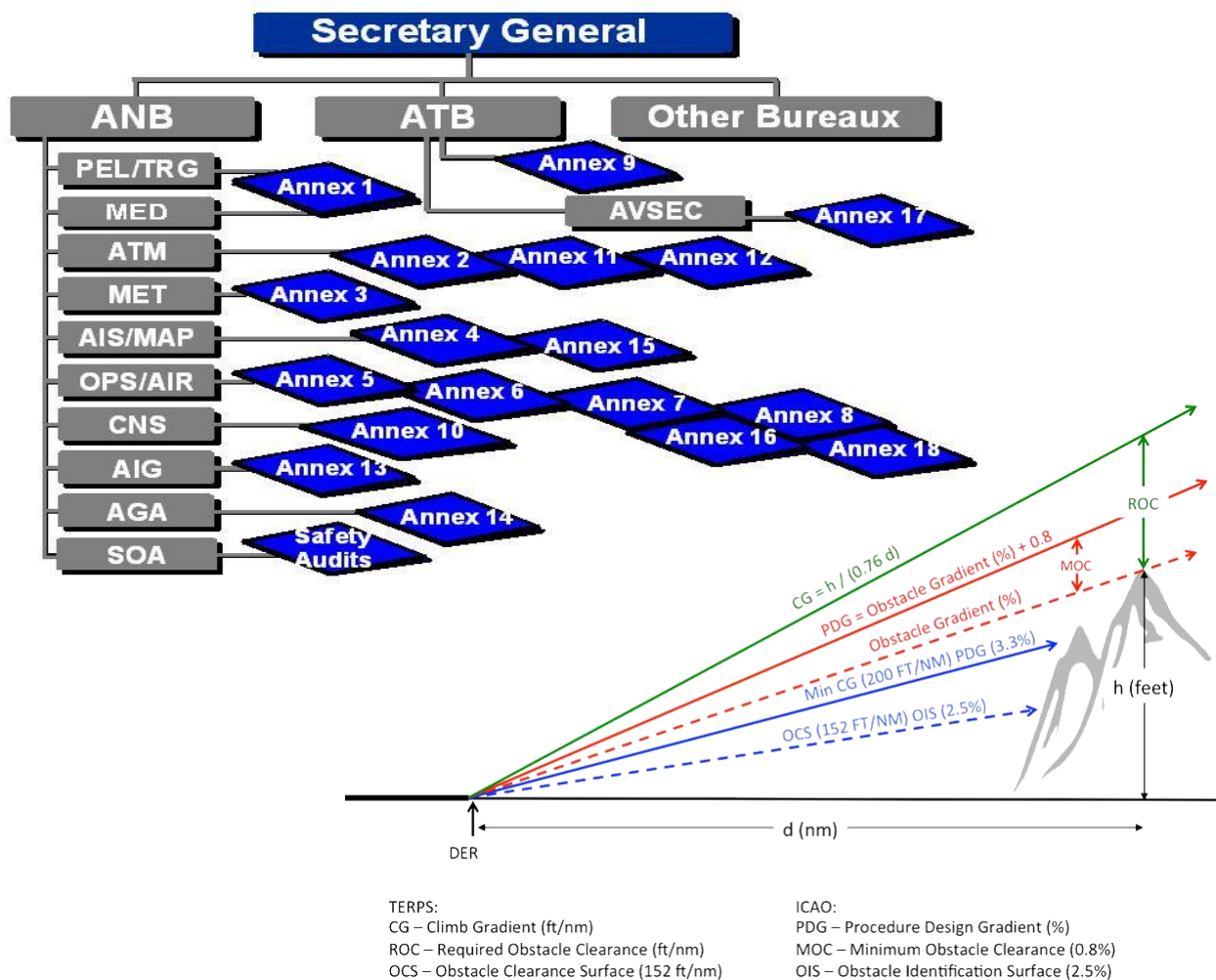
100- In a forecast what does the code "DS" stand for?

- A) Severe icing
- B) Dust storm
- C) Hail
- D) Embedded thunderstorm with hail

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	B	26	B	51	C	76	C
2	C	27	D	52	D	77	A
3	B	28	D	53	D	78	A
4	A	29	C	54	A	79	D
5	D	30	D	55	A	80	A
6	C	31	A	56	C	81	B
7	C	32	B	57	D	82	C
8	A	33	C	58	B	83	D
9	B	34	C	59	C	84	D
10	A	35	D	60	A	85	B
11	C	36	C	61	D	86	D
12	C	37	B	62	D	87	A
13	A	38	D	63	D	88	D
14	B	39	C	64	B	89	D
15	C	40	B	65	A	90	D
16	C	41	B	66	B	91	B
17	B	42	B	67	A	92	B
18	B	43	C	68	A	93	C
19	A	44	D	69	D	94	B
20	C	45	D	70	A	95	C
21	C	46	D	71	B	96	D
22	A	47	C	72	D	97	D
23	D	48	A	73	B	98	B
24	D	49	A	74	B	99	C
25	C	50	B	75	B	100	B

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Annex 6 (II)



➤ Annex 6 P II 9th, AMDT 34

1- An aeroplane can be:

- A) Power driven
- B) Lighter than air
- C) Heavier than air
- D) A & C

2- Flight crew member is:

- A) A licensed crew member on an aeroplane.
- B) A licensed crew member on an aeroplane during flight time.
- C) A licensed crew member on an aircraft during flight duty period.
- D) A licensed crew member on an aircraft.

3- Flight time is a synonymous with:

- A) Block to block
- B) Chock to chock
- C) A and B
- D) A or B

4- The procedures for carrying of dangerous goods are contained in:

- A) Annex 1
- B) Annex 6
- C) Annex 18
- D) Annex 17

5- Civil twilight means:

- A) Center of sun's disc is 6 degrees above horizon.
- B) Center of sun's disc is 15 degrees below horizon.
- C) Center of sun's disc is 6 degrees below horizon.
- D) Center of sun's disc is 15 degrees above horizon.

6- An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure is known as:

- A) En-route alternate aerodrome
- B) Destination alternate aerodrome
- C) Take-off alternate aerodrome
- D) ETOPS alternate aerodrome

7- The aerodrome from which a flight departs may also be used as:

- A) En-route alternate aerodrome
- B) Destination alternate aerodrome
- C) Take-off alternate aerodrome
- D) A or B

8- The acronym of an automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft is called:

- A) ELT (AP)
- B) ELT (AF)
- C) ELT (AD)
- D) ELT (S)

9- Which of ICAO Annexes shall be applicable to the operation of aeroplanes by operators authorized to conduct international commercial air transport operations?

- A) Annex 6 Part III
- B) Annex 6 Part II
- C) Annex 6 Part I
- D) Annex 8

10- A manual associated with the certification of airworthiness is:

- A) Operation manual
- B) Flight manual
- C) Air traffic manual
- D) A and B

11- The operational control is responsibility of:

- A) Pilot-in-command
- B) Operator
- C) State
- D) All answers are correct

12- If the incident occurs and necessitates to report by Pilot-in-command it shall be made normally within:

- A) 10 days
- B) 90 days
- C) 1 month
- D) 3 months

13- If an emergency situation which endangers the safety of the aeroplane necessitates the taking of action which involves a violation of local regulations or procedures. When shall pilot notify the local authority?

- A) Within 10 days
- B) Within 5 days
- C) At termination of flight
- D) Without delay

14- Flight time is commenced from the moment an aircraft:

- A) First moves with own power.
- B) First moves with push back system.
- C) Moves with own power for the purpose of taking off.
- D) First moves for the purpose of taking off.

15- Flight recorder comprises:

- A) Cockpit voice recorder
- B) Flight data recorder
- C) A or B
- D) A and B

16- The Maximum certificated take-off mass of large aeroplane is:

- A) Over 27000 kg
- B) Over 5700 kg
- C) Over 7000 kg
- D) Over 13600 kg

17- What is the name of manual which contain limitation within which the aircraft is to be considered airworthy?

- A) Technical manual
- B) Operations manual
- C) Flight manual
- D) Airworthiness manual

18- Which of the following DH and RVR are determined as minima for the Precision approach CAT I operations?

- A) 200 ft / 550 m
- B) 100 ft / 300 m
- C) No DH / 175 m
- D) No DH / 50 m

19- Flight crew members shall demonstrate the ability to speak and understand the language used for radiotelephony communications as specified in:

- A) Annex 6
- B) Annex 1
- C) Annex 18
- D) Annex 17

20- Navigation for flights under the visual flight rules is accomplished by:

- A) Instrument
- B) Visual reference to landmarks
- C) VMC
- D) IMC

21- Which of ICAO Annex shall be applicable to international general aviation operations with aeroplanes?

- A) Annex 6 Part II
- B) Annex 6 Part III
- C) Annex 6 Part I
- D) Annex 8

22- Which of ICAO Annex shall be applicable to international commercial air transport operations or international general aviation operations with helicopters?

- A) Annex 6 Part III
- B) Annex 6 Part II
- C) Annex 6 Part I
- D) Annex 8

23- A manual which contain procedures, instructions and guidance for use by operational personnel in the execution of their duties is called:

- A) Maintenance manual
- B) Operations manual
- C) Flight manual
- D) MEL

24- Pilot in command is responsible for the:

- A) Operation and safety of aircraft during flight time.
- B) Operation and control of aircraft during flight time.
- C) Operation and security of aircraft.
- D) Operation, safety and security of aircraft during flight time.

25- Each flight crew member required to be at their station during:

- A) En-route
- B) Take-off and Landing
- C) Cruise climb
- D) Only landing

26- How many destination alternate aerodromes shall be specified in flight plan for IFR flights?

- A) One
- B) Two
- C) At least one
- D) None

27- Which of the following operation shall be able to establish two-way communication?

- A) IFR
- B) Controlled VFR
- C) Night operation
- D) All answers are correct

28- The amount of fuel for IFR flight when no destination alternate required is:

- A) Departure to Destination + 2 hrs
- B) Departure to Destination + at least 45 min at normal cruising altitude
- C) Departure to Destination + 45 min at normal cruise consumption
- D) Departure to Destination + 2 hrs at normal cruise consumption

29- How shall be the weather minima at destination and destination alternate for an IFR flight?

- A) Equal to aerodrome minima
- B) At or above minima
- C) Above minima
- D) All answers are correct

30- What shall be the minimum visibility at isolated destination aerodrome when no destination alternate is required?

- A) 5.5 km
- B) 4 km more than procedure minima
- C) A or B
- D) A and B

31-The amount of fuel required for VFR at day to the aerodrome of intended landing is:

- A) Departure to Destination + at least 30 minutes at normal cruising altitude
- B) Departure to Destination + at least 45 minutes at normal cruising altitude
- C) Departure to Destination + 45 minutes
- D) Departure to Destination + 30 minutes

32- For which of the following pressure, the non-pressurized aeroplane, shall have sufficient breathing oxygen for all crew and 10 percent of passengers:

- A) 376 hPa
- B) 609 hPa
- C) 623 hPa
- D) Less than 620 hPa

33- When an aeroplane shall have quick donning type of oxygen mask?

- A) Operating at an altitude with pressure of less than 700 hPa
- B) Operating at an altitude with pressure of less than 673 hPa
- C) Operating at an altitude with pressure of less than 620 hPa
- D) Operating at an altitude with pressure of less than 376 hPa

34- Who is responsible to approve and publish an Instrument approach procedure?

- A) Operator
- B) State of the operator
- C) ATC
- D) State of the aerodrome

35- Which category of precision approach may use both visibility or RVR as aerodrome operating minima?

- A) CAT I
- B) CAT II
- C) CAT III
- D) All answers are correct

36- When the pilot-in-command shall report any suspected defects to the operator?

- A) Without delay
- B) At the termination of flight
- C) Normally within 10 days
- D) Any time

37- All turbine engine aircraft with maximum certificated take-off mass in excess of or authorized to carry more than shall be equipped with GPWS which has a forward-looking terrain avoidance function.

- A) 5700 kg – 15 passengers
- B) 27000 kg – 30 passengers
- C) 5700 kg – 9 passengers
- D) 15000 kg – 9 passengers

38- Which flight shall carry the amount of breathing oxygen sufficient for all crew members and 10 percent of passengers?

- A) When pressure compartment is 700
- B) When pressure compartment is 620
- C) When pressure compartment is 376
- D) Between A and B

39- Which manual contain the operating limitation?

- A) Flight manual
- B) Operational manual
- C) Annex 6
- D) Annex 1

40- Who is responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aeroplane, resulting in serious injury or death of any person or substantial damage to the aeroplane or property.

- A) State
- B) Pilot-in-command
- C) Air traffic control
- D) Operator

41- Which FDR shall record the configuration of lift and drag devices only?

- A) Type IA
- B) Type IIA
- C) Type I
- D) Type II

42- Which equipment is able to warn a pilot regarding to excessive altitude loss after take-off or go-around?

- A) Radar altimeter
- B) GPWS
- C) Radio altimeter.
- D) ADS.

43- Safety harness includes:

- A) Shoulder straps
- B) Seat belt
- C) A and B
- D) A or B

44- Where RVR is used, the controlling RVR is the:

- A) Stop-end RVR
- B) Mid-point RVR
- C) Touchdown RVR
- D) All answers are correct

45- An instrument approach shall not be continued below above the aerodrome elevation or into the final approach segment unless the reported visibility or controlling RVR is at or above the specified minimum.

- A) 300 m (1 000 ft)
- B) Glide slope
- C) 600 m (2 000 ft)
- D) 450 m (1 500 ft)

46- The flight manual shall be updated by implementing changes made mandatory by:

- A) State of Operator
- B) Operator
- C) State
- D) State of Registry

47- How an aeroplane may be refueled, when passengers are on board the aeroplane?

- A) Attended by pilot in command or other qualified person.
- B) Two-way communications should be maintained between the ground crew supervising the refueling and the pilot-in-command or other qualified personnel.
- C) A and B
- D) A or B

48- If a flight crew member capacity is reduced due to lack of oxygen, what is the responsibility of pilot in command?

- A) Continue to destination
- B) Not continue beyond nearest suitable aerodrome
- C) Continue to en-route alternate
- D) Back to departure

49- When an aeroplane is authorized to operate in icing condition?

- A) Certify to operate
- B) Equipped for operation
- C) A or B
- D) A and B

50- All flight crew members shall communicate through boom or throat microphones:

- A) Above the transition level/altitude
- B) Below the transition level/altitude
- C) Below the transition altitude
- D) Above the transition level

51- Flight data recorder shall be capable to retain information recorded during its last:

- A) 25 hrs of flight time
- B) 25 hrs of its operation
- C) 25 hrs of last inspection
- D) 25 hrs of engine run

52- Cockpit voice recorder shall be capable of retaining the information recorded during at least the last:

- A) 30 days
- B) 30 hours
- C) 30 minutes
- D) Any time

53- Extended flight over water means when a flight operated over water at a distance of:

- A) More than 50 NM, away from land suitable for making an emergency landing.
- B) More than 50 NM, or 30 minutes at normal cruising speed, whichever is the lesser, away from land suitable for making an emergency landing.
- C) More than 50 NM, or 30 minutes at normal cruising speed, whichever is the greater, away from land suitable for making an emergency landing.
- D) 50 NM, or 30 minutes, whichever is the lesser, away from land.

54- The color of the markings of break-in points shall be:

- A) Red
- B) Yellow
- C) Black
- D) A or B

55- A Reduced Vertical Separation Minimum (RVSM) of 300 m (1,000 ft) is applied:

- A) Between FL290 and FL410
- B) Between FL290 and FL410 inclusive
- C) Between FL290 and FL410 exclusive
- D) Above FL290

56- How many landing lights an aeroplane requires when operating at night?

- A) One
- B) Two
- C) At least one
- D) At least two

57- After 1 January 2016, Cockpit voice recorder shall be capable of retaining the information recorded during at least the last:

- A) 30 days
- B) 25 hours
- C) 30 min
- D) 2 hours

58- How many fire extinguishers shall be located on pilot's compartment?

- A) One
- B) Two
- C) At least one
- D) At least two

59- VFR flights which are operated as controlled flights shall be equipped with:

- A) VFR instruments
- B) IFR instruments
- C) GPWS
- D) ELT

60- A seat or berth for each person over an age to be determined by:

- A) State of Operator
- B) Operator
- C) State
- D) State of Registry

61- The instruments and equipment, including their installation in aeroplanes shall be approved or accepted by:

- A) State of Operator
- B) Operator
- C) State
- D) State of Registry

62- The FDR container is to be painted in:

- A) Orange or yellow
- B) Red
- C) Black
- D) Yellow

63- All aeroplane on all flights shall carry:

- A) Interception procedures
- B) Flight manual
- C) Current suitable chart
- D) All answers are correct

64- What action shall be taken by a pilot-in-command following an act on unlawful interference?

- A) Submit a report to state of the operator
- B) Submit a report to appropriate authority
- C) Submit a report to designated local authority
- D) Submit a report to security authority

65- Which maintenance can release an aeroplane for flight?

- A) Qualified by operator
- B) Qualified by annex 6
- C) Qualified by annex 1
- D) Qualified by state of operator

66- The flight manual contains the information specified in:

- A) Annex 18
- B) Annex 8
- C) Annex 6
- D) Annex 16

67- According to which ICAO annexes the flight crew shall be licensed?

- A) Annex 6
- B) Annex 1
- C) Annex 2
- D) Annex 11

68- When a flight recorder shall be switched off?

- A) En-route
- B) Take off
- C) Landing
- D) None

69- When a pressurized aeroplane shall be equipped with a device to provide positive warning to the pilot-in-command in the case of loss of pressurization?

- A) Intends to fly at level with less than 620 hPa
- B) Intends to fly at level with less than 376 hPa
- C) Intends to fly at level with less than 600 hPa
- D) Intends to fly at level with less than 367 hPa

70- The records of maintenance release form of the aeroplane shall be kept for a minimum period of:

- A) 90 days
- B) One year
- C) 3 months
- D) 4 months

71- How many ELT shall have an aeroplanes which the individual certificate of airworthiness is first issued after 1 July 2008?

- A) At least two ELTs, one of which shall be automatic
- B) At least one ELT of any type
- C) At least one automatic ELT
- D) At least two

72- The standard of noise certification is contained in?

- A) Annex 18
- B) Annex 16 Vol I
- C) Annex 16 Vol II
- D) Annex 8

73- Who is responsible for the submission of journey log book?

- A) Operator
- B) Pilot-in-command
- C) State
- D) State of the operator

74- Which document specified the number and composition of flight crew member?

- A) Flight manual
- B) Annex 6
- C) Operations manual
- D) Aircraft operating manual

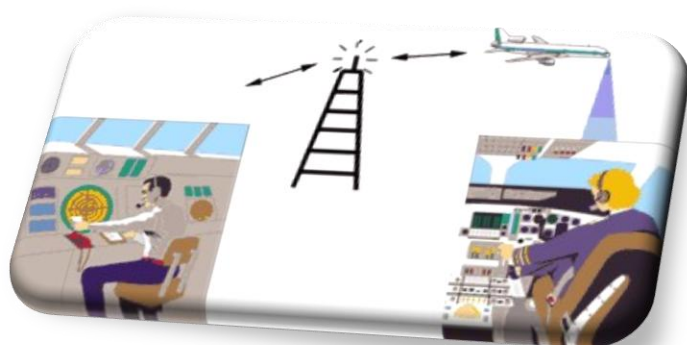
75- Who is responsible to submit a report regarding act of an unlawful interference authority without delay?

- A) Pilot-in-command
- B) Operator
- C) ATC
- D) All

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	D	21	A	41	D	61	D
2	C	22	A	42	B	62	A
3	D	23	B	43	C	63	D
4	C	24	D	44	C	64	C
5	C	25	B	45	A	65	C
6	C	26	C	46	D	66	B
7	D	27	D	47	C	67	B
8	A	28	B	48	B	68	D
9	C	29	B	49	D	69	B
10	B	30	C	50	B	70	B
11	A	31	A	51	B	71	C
12	A	32	C	52	C	72	B
13	D	33	D	53	B	73	B
14	D	34	D	54	D	74	A
15	D	35	A	55	B	75	A
16	B	36	B	56	A		
17	C	37	C	57	D		
18	A	38	D	58	C		
19	B	39	A	59	B		
20	B	40	B	60	D		

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Annex 10



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1- How long the test signal shall be made?

- A) 10 seconds
- B) Minimum 10 seconds
- C) Maximum 10 seconds
- D) All answers are incorrect

2- Which of the following message shall be handled by inter-pilot air-to-air communication when necessary?

- A) Regulatory messages
- B) Safety messages
- C) Meteorological messages
- D) A and B are correct

3- How long elapse time is required between the first and second call?

- A) 10 seconds
- B) At least 10 seconds
- C) Maximum 10 seconds
- D) None

4- What language shall be used by air-ground radiotelephony communication?

- A) Language used by ground station
- B) English language
- C) A or B are correct
- D) A or one of the ICAO languages

5- Which publication shall indicate the languages used by ground station?

- A) AIP
- B) Annex 10
- C) Doc 4444
- D) Annex 2

6- Which ICAO annexes specifies the required level of language proficiency?

- A) Annex 1
- B) Annex 2
- C) Annex 6
- D) Annex 10

7- How the number of altimeter setting shall be transmitted?

- A) Whole thousand
- B) A + whole hundred
- C) Each digit separately
- D) All answers are correct

8- How the altitude of 15,500 (ft) shall be transmitted?

- A) fifteen thousand, five hundred
- B) one five thousand, five hundred
- C) one five five zero zero
- D) one five five hundred

9- The rate of speech should not be?

- A) Less than 100 words per minutes
- B) less than 60 words per minutes
- C) more than 100 words per minutes
- D) more than 60 words per minutes

10- For which of the following phrases, "ROGER" is used?

- A) READ BACK
- B) AFFIRM
- C) NEGATIVE
- D) NONE

11- The suffix of the call sign of direction finding station is...

- A) Information
- B) Radio
- C) Homer
- D) Delivery

12- The suffix of the call sign of an approach control unit providing radar service for departure traffic is:

- A) Approach
- B) Departure
- C) Radar
- D) Control

13- The full call sign may consist of radiotelephony designator of the operator and

- A) The full characters of registration mark
- B) The last three characters of registration mark
- C) The last four characters of registration mark
- D) The first and last two characters of registration mark

14- Which of the following term may be used for abbreviated call sign?

- A) Aircraft operating agency designator
- B) Aircraft model
- C) Aircraft manufacture
- D) All answers are correct

15- When the aircraft radiotelephony call sign may be changed?

- A) During IFR
- B) Interest of safety
- C) Bad weather
- D) Emergency

16- Who is authorized to change the aircraft radiotelephony call sign temporarily?

- A) Pilot-in-Command
- B) Operator
- C) ATC unit
- D) Dispatcher

17- What is the inter-pilot air-to-air channel?

- A) 121.5 MHz
- B) 123.45 MHz
- C) 123.45 kHz
- D) 243 kHz

18- Which of the following frequencies, are separated by 25 kHz?

- A) 123.45 MHz
- B) 118.0 MHz
- C) 119.0 MHz
- D) All answers are correct

19- Which of the following channel are separated by 8.33 kHz?

- A) 121.5 MHz
- B) 123.45 MHz
- C) 118.025 MHz
- D) 133.02 MHz

20- What is the readability scale of number 2?

- A) Readable now and then
- B) Unreadable
- C) Readable but with difficulty
- D) None of above

21- How many times during air-ground communication the message shall be transmitted by an aircraft after the phrase "TRANSMITTING BLIND"?

- A) One
- B) Twice
- C) At least one
- D) At least two

22- During which case of radio failure, the aircraft station shall advise the time of its next intended transmission?

- A) Air-ground
- B) Ground-to-air
- C) Receiver failure
- D) All answers are incorrect

23- How many preselected audio tones may be used to determine "SELCAL"?

- A) 4
- B) 3
- C) 2
- D) 1

24- Where the "SELCAL" should be submitted?

- A) operational flight plan
- B) operating manual
- C) departure message
- D) ATS flight plan

25- If "SELCAL" remain unanswered, when an aeronautical station may revert to voice communication?

- A) After 2 calls on the primary frequencies
- B) After 2 calls on the secondary frequencies
- C) A and B
- D) A or B

26- How many times, the distress signal may be transmitted?

- A) 2 times
- B) 3 times
- C) At least 2 times
- D) At least 3 times

27- How many times, the urgency signal may be transmitted?

- A) 1
- B) 2
- C) 3
- D) 4

28- How may an aircraft communicate the intents of medical transport?

- A) PANPAN
- B) MAY-DEE-CAL
- C) MAYDAY
- D) A & B for three times

29- For which bands of frequencies, the SELCAL should be utilized?

- A) VHF + HF
- B) VHF + UHF + MF
- C) VHF
- D) HF only

30- What phrase shall request for verification of numbers?

- A) ACKNOWLEDGE the number
- B) READ BACK the number
- C) SAY AGAIN the number
- D) CHECK the number

31- If an ATC clearance is not suitable to the pilot in command, he may:

- A) Proceed according to the operational flight plan.
- B) Request and obtain an amended clearance.
- C) Follow the given clearance.
- D) Both A and C are correct.

32- What is the meaning of “Over” in radiotelephony?

- A) My transmission is ended and I expect a response from you.
- B) My transmission ended and no response is expected.
- C) Repeat all of your last transmission.
- D) Pass me the following information.

33- What is the meaning of “Out” in radiotelephony?

- A) My transmission ended and no response is expected.
- B) This exchange of transmission is ended and no response is expected.
- C) Repeat all of your last transmission.
- D) Pass me the following information.

34- What is the meaning of “Say again” in radiotelephony?

- A) My transmission ended and no response is expected.
- B) Repeat all or the following part of your last transmission.
- C) Repeat all of your last transmission.
- D) Pass me the following information.

35- What is the meaning of “Report” in radiotelephony?

- A) My transmission ended and no response is expected.
- B) Repeat all or the following part of your last transmission.
- C) Repeat all of your last transmission.
- D) Pass me the following information.

36- A time of "13:20" hour is transmitted as:

- A) One three two zero or two zero.
- B) Thirteen twenty hours.
- C) Twenty.
- D) Twenty past eleven.

37- Before transmitting the pilot should:

- A) Make sure that the aircraft is leveled off.
- B) Listen out on the frequency to ensure no interference with another station already transmitting will occur.
- C) Always write the message and read it during the transmission.
- D) Make sure that the emergency frequency is tuned in at the same Time.

38- My message will be more effective and understandable if I:

- A) Maintain the speaking volume clear with constant level.
- B) Use the words twice method.
- C) Stress the end of message in distress message.
- D) Stress every beginning of message.

39- What is meant by good microphone technique?

- A) Keep the microphone close away since it improves the readability.
- B) Speak very loudly into the microphone.
- C) Use a normal conversation tone, speak short and distinctly with plain language.
- D) Make less use of hesitation sounds as ER.

40- What does the phrase READ BACK mean?

- A) You correctly receive this message
- B) Let me know that you have received and understood this message
- C) Repeat all other specified part of this message back to me exactly as received.
- D) Check and confirm with originator.

41- What does the phrase ROGER mean?

- A) A direct answer in the affirmative.
- B) I have received all of your last transmission.
- C) A direct answer in the negative.
- D) Cleared for takeoff or cleared to land.

42- If a controller would like to say to you "PASS ME THE FOLLOWING INFORMATION" must use the expression:

- A) READBACK
- B) REPORT
- C) SAY AGAIN
- D) REQUEST

43- Which phrase shall be used if you want to say YES?

- A) Roger
- B) Yes
- C) Affirm
- D) Affirmative

44- What does the instruction "VACATE LEFT" mean?

- A) Turn left to leave the runway.
- B) Give way to aircraft from the left.
- C) Clear the runway immediately.
- D) Hold position on the left side of the runway.

45- Which phrase shall be used if you want to say "I WOULD LIKE TO KNOW "or "I WISH TO OBTAIN"?

- A) Confirm
- B) Report
- C) Acknowledge
- D) Request

46- How shall a pilot inform a radar control unit that the aircraft is not equipped with transponder?

- A) No SSR.
- B) Negative transponder.
- C) Transponder not available.
- D) Negative squawk.

47- Which phrase shall be used if the repetition of an entire message is required?

- A) What was your message?
- B) Repeat your message.
- C) Say again.
- D) Repeat your last transmission.

48- What does the instruction "GO AROUND" mean?

- A) Overtake the aircraft ahead.
- B) Carry out a missed approach.
- C) Make a 360° turn.
- D) Proceed with your message.

49- Which phraseology is to be used to ask the control tower for permission to taxi on a runway in the direction opposite to that in use?

- A) Request backtrack on runway.
- B) Clearance to backtrack.
- C) To enter back runway.
- D) Backtrack clearance.

50- How shall a pilot inform the control tower that he is prepared for takeoff?

- A) Ready to go.
- B) Ready for takeoff.
- C) Ready to line-up.
- D) Ready for departure.

51- Which of these phrases is used to inform the control tower that a pilot is performing a missed approach?

- A) Pulling up.
- B) Overshooting.
- C) Will make another approach.
- D) Going around.

52- What does the instruction "ORBIT RIGHT" mean?

- A) Make 360° turns to the right.
- B) Turn right to avoid other traffic.
- C) Right-hand circuits are in use.
- D) Leave the runway to the right.

53- Which phrase shall be used if you want to say "AN ERROR HAS BEEN MADE IN THIS TRANSMISSION". The correct version is?

- A) QNH 1017, negative QNH 1016.
- B) QNH 1017, correction QNH 1016.
- C) QNH 1017, negative 1016.
- D) QNH 1017, negative I say again 1016.

54- Which phrase shall be used to confirm that a message has been repeated correctly?

- A) That is right.
- B) Correct.
- C) Affirm.
- D) That is affirmative.

55- Which of these statements best describes the meaning of the phrase STANDBY?

- A) Wait and I will call you.
- B) Continue on present heading and listen out.
- C) Select STANDBY on the SSR transponder.
- D) Permission granted for action proposed.

56- Which phrase shall be used if you want to say "I UNDERSTAND YOUR MESSAGE AND WILL COMPLY WITH IT"?

- A) Will comply with your instruction.
- B) Roger.
- C) WILCO.
- D) OK, will do it.

57- Which of the following sequences shows the correct elements of a position report in the correct order?

- 1) Aircraft identification
- 2) Position
- 3) Heading (°M)
- 4) Flight level or altitude
- 5) Next position and ETA
- 6) Ensuing significant point
- 7) Aircraft type
- 8) Time

- A) 1, 2, 3, 4, 5, 6
- B) 1,7,2, 6, 4
- C) 1,2,8,4,5,6
- D) 1,2,4,5,6

58- If a pilot receives an instruction from ATC which cannot be carried out, the reply should use the phrase:

- A) CANCEL INSTRUCTION
- B) UNABLE
- C) NEGATIVE INSTRUCTION
- D) REGRET CANNOT FOLLOW INSTRUCTION

59- You are making a long straight in approach to land, at what range would you make the call "LONG FINAL"?

- A) 2 NM
- B) 4 NM
- C) Between 8 and 4 NM
- D) 3 NM

60- What does the word "NEGATIVE" mean?

- A) Permission not granted.
- B) Proposed action granted.
- C) Disregard last instruction
- D) Consider that transmission as not sent.

61- What does the word "WILCO" mean?

- A) I read you fine.
- B) I have received all of your last transmission.
- C) I understand your message and will comply with it.
- D) As communication is difficult, I will call you later.

62- Which word or phrase shall be used if you want to say "WAIT AND I WILL CALL YOU"?

- A) Roger
- B) Go ahead
- C) Standby
- D) WILCO

63- Which of the following calls is a "GENERAL CALL"?

- A) EP-DEF Tehran CONTROL
- B) EP-EFG, EP-FGH over.
- C) ALL STATIONS Tehran CONTROL.
- D) EP-ABC, EP-BCD, EP-CDE Tehran CONTROL.

64- When should aircraft EP-ABC call Tehran TOWER on initial call?

- A) TOWER EP-ABC
- B) Tehran TOWER E-BC
- C) Tehran EP-ABC
- D) Tehran TOWER EP-ABC

65- What is the radiotelephony call sign for the aeronautical station providing surface movement control of aircraft on the maneuvering area?

- A) Ground
- B) Approach
- C) Tower
- D) Control

66- What is the radiotelephony call sign suffix for the aeronautical station indicating aerodrome information service?

- A) Flight center
- B) Flight information center
- C) Information
- D) Control

67- An aerodrome located at Payam notified as having an Aerodrome Flight Information Service (AFIS) will identify itself to aircraft using the call sign:

- A) Payam information
- B) Payam radio
- C) Payam tower
- D) Payam ground

68- Which of the following abbreviated call signs of Cherokee EP-ABC is correct?

- A) Cherokee E-BC
- B) Cherokee EP-BC
- C) Cherokee BC
- D) Cherokee E-ABC

69- Which of the following abbreviated call signs of aircraft EP-ABC is correct?

- A) EP-BC
- B) E-BC
- C) ABC
- D) BC

70- Aircraft E-BC has been instructed to contact Payam TOWER on frequency 118.4, What is the correct response to indicate that it will follow this instruction?

- A) Payam TOWER E-BC.
- B) Will change to TOWER E-BC.
- C) Changing over E-BC.
- D) 118.4 E-BC.

71- In the event that a pilot is required to make a blind transmission, this should be made:

- A) Only once on the designated frequency.
- B) Twice on the designated frequency.
- C) On the emergency frequency only.
- D) During VFR flights only.

72- A message preceded by the phrase "TRANSMITTING BLIND DUE RECEIVER FAILURE" shall be transmitted:

- A) On the regional guard frequency.
- B) On the frequency presently in use.
- C) On the international emergency frequency.
- D) On all available aeronautical stations.

73- When transmitting a message preceded by the phrase "TRANSMITTING BLIND DUE TO RECEIVER FAILURE" during an en-route flight, the aircraft station shall also:

- A) Land at the nearest airfield/airport.
- B) Join base leg when approaching the airfield for landing.
- C) Advise the time of its next intended transmission.
- D) Return to the airport of departure.

74- On the readability scale what does READABILITY 1 mean?

- A) Readable but with difficulty.
- B) Readable.
- C) Perfectly readable.
- D) Unreadable.

75- On the readability scale what does READABILITY 3 mean?

- A) Readable but with difficulty.
- B) No problem to understand.
- C) Loud and clear.
- D) Unreadable.

76- Aircraft EP-ABC is making a test transmission with Ahwaz TOWER on frequency 121.1, What is the correct phrasing for this transmission?

- A) Ahwaz TOWER EP-ABC signal check.
- B) Ahwaz TOWER EP-ABC preflight check.
- C) Ahwaz TOWER EP-ABC radio check 121.1.
- D) Ahwaz TOWER EP-ABC frequency check.

77- On the readability scale what does READABILITY 5 mean?

- A) Perfectly readable.
- B) Unreadable.
- C) Problem to understand.
- D) Readable but with difficulty.

78- Which elements of instructions or information shall always be read back?

- A) Surface wind, visibility, ground temperature, runway in-use, altimeter settings, heading and speed instructions.
- B) Runway-in-use, visibility, surface wind, heading instructions, altimeter settings.
- C) Runway-in-use, altimeter settings, SSR codes, level Instructions, heading and speed instructions.
- D) Wind speed, runway-in-use, altimeter settings, level instructions, SSR codes.

79- Cherokee EP-ABC receives the following instruction:

"E-BC CLIMB STRAIGHT AHEAD UNTIL 2500 FEET BEFORE TURNING RIGHT. WIND 270 DEGREES 6 KNOTS. CLEARED FOR TAKEOFF". What is the correct read back?

- A) Straight ahead, 2500 feet right turn, wind west 6 knots, cleared for takeoff, E-BC.
- B) Wilco, cleared for takeoff, E-BC.
- C) Right turn after 2500, roger, E-BC.
- D) Straight ahead, at 2500 feet right turn, cleared for takeoff, E-BC.

80- An aircraft is instructed to hold short of the runway-in-use. What is the correct phraseology to indicate it will follow this instruction?

- A) WILCO
- B) Holding short.
- C) Will stop before.
- D) Roger.

81- Shall an ATC route clearance always be read back?

- A) No, if the communication channel is overloaded.
- B) No, if the ATC route clearance is transmitted in a published form (e.g. Standard Instrument Departure Route/SID).
- C) Yes, unless otherwise authorized by ATS authority concerned.
- D) No, if the content of the ATC clearance is clear and no confusion is likely to arise.

82- Aircraft E-BC has been instructed to listen on ATIS frequency 123.25, on which information are being broadcast. What is the correct response to indicate that it will follow this instruction?

- A) Checking 123.25 E-BC.
- B) Changing to 123.25 E-BC.
- C) Will contact 123.25 E-BC.
- D) Monitoring 123.25 E-BC.

83- How should a pilot terminate the readback of an ATC clearance?

- A) With his own aircraft call sign.
- B) With the word "Wilco",
- C) With the ATC ground station call sign.
- D) With the word "Roger".

84- A pilot is required to read back the following ATC messages:

- A) Altimeter settings, weather information, airways clearances, information regarding the proximity of other aircraft and taxi instructions.
- B) Altimeter settings, weather information, information regarding the proximity of other aircraft and taxi instructions.
- C) Altimeter settings, airways clearances, SSR operating instructions, level instructions and any message when requested by ATC.
- D) Altimeter settings, taxi instructions, takeoff clearances, weather information and any other information given by ATC.

85- When asked by ATC "ARE YOU ABLE TO MAINTAIN FL080?" the correct reply contains the word:

- A) ROGER
- B) WILCO
- C) AFFIRM or NEGATIVE
- D) CLEARED

86- What is the correct way of expressing visibility?

- A) Visibility 1.2 kilometer's.
- B) Visibility 1.200 feet.
- C) Visibility 1.2 nautical miles.
- D) Visibility 1.200 meter's.

87- What action is required by the pilot of an aircraft station if he/she is unable to establish radio contact with an aeronautical station?

- A) Squawk mode A code 7500.
- B) Divert to the alternate airport.
- C) Try to establish communication with other aircraft or aeronautical stations.
- D) Land at the nearest aerodrome appropriate to the route of flight.

88- An aircraft station fails to establish radio contact with an aeronautical station on the designated frequency. What action is required by the pilot?

- A) Return to the airport of departure.
- B) Continue the flight to the destination airport without any communication.
- C) Attempt to establish contact with the station on an alternative frequency.
- D) Land at the nearest airport without an ATC unit.

89- What is the transponder code for radio communication failure?

- A) 7200
- B) 7600
- C) 7500
- D) 7700

90- An aircraft in distress shall send the following signal by radiotelephony:

- A) PAN PAN, PAN PAN, PAN PAN
- B) DETRESFA, DETRESFA, DETRESFA
- C) MAYDAY, MAYDAY, MAYDAY
- D) URGENCY, URGENCY, URGENCY

91- The frequency used for the first transmission of a MAYDAY call shall be:

- A) The distress frequency 121.5 MHz.
- B) The frequency currently in use.
- C) Any other international emergency frequency.
- D) Any frequency at pilot's discretion.

92- The distress message shall contain as many as possible of the following elements:

- A) Aircraft call sign, nature of distress, pilots intention, present position, level and heading.
- B) Aircraft call sign, route of flight, destination airport.
- C) Aircraft call sign, aerodrome of departure, position and level.
- D) Aircraft call sign, present position, assistance required.

93- Distress is defined as a condition:

- A) Requiring immediate assistance and danger may or may not be threatened.
- B) A condition of being threatened by serious and/or imminent danger, and of requiring immediate assistance.
- C) Concerning the safety of an aircraft or other vehicle, or some person on board or within sight, but does not require immediate assistance.
- D) Concerning the safety of any aircraft, ship or other vehicle.

94- A Distress or Urgency call shall be preceded by the prefix MAYDAY or PANPAN transmitted:

- A) Once.
- B) Twice.
- C) Three times.
- D) Until acknowledged.

95- Which frequency shall be used for the first transmission of an urgency call?

- A) The international emergency frequency.
- B) The air-ground frequency in use at the time.
- C) The regional guard frequency.
- D) Any frequency at pilot's discretion.

96- An aircraft transmitting a distress message is required to give its position as:

- A) The most accurate possible using GPS if fitted.
- B) Present or last known position, altitude or level and heading.
- C) Position relative to a VRP.
- D) Latitude and longitude.

97- What does the phrase "BREAKBREAK" mean?

- A) The exchange of transmissions is ended and no response is expected.
- B) It indicates the separation between portions of a message transmitted to an aircraft station.
- C) It indicates the separation between messages transmitted to different aircraft in a very busy environment.
- D) My transmission is ended and I expect a response from you.

98- An urgency message shall be preceded by the radiotelephony urgency signal:

- A) ALERFA, spoken three times.
- B) URGENCY, spoken three times.
- C) MAYDAY, spoken three times.
- D) PANPAN, spoken three times.

99- The subsequent content of a distress or urgency message must consist of the following items:

- 1. Position**
- 2. Intention of person in command**
- 3. Type of aircraft**
- 4. Nature of emergency**
- 5. Call sign**

Transmitted in the order:

- A) 5,4, 2, 3, 1
- B) 5,4.1,2,3
- C) 5,4, 2, 1
- D) 5,4, 3,2, 1

100- A condition of urgency is defined as:

- A) A condition of being threatened by serious and or immediate danger and of requiring immediate assistance.
- B) A condition concerning the safety of an aircraft or other vehicle or of some person on board or within sight and requiring immediate assistance.
- C) A condition requiring immediate assistance.
- D) A condition concerning the safety of an aircraft or other vehicle or of some person on board or within sight, but which does not require immediate assistance.

101- Which is the maximum distance at which you might expect solid VHF contact over flat terrain at FL100?

- A) About 123 NM
- B) About 300 NM
- C) About 30 NM
- D) About 12 NM

102- The frequency 121.500 MHz is designated as:

- A) An international emergency frequency
- B) A frequency for air-to-air communication
- C) A regional UHF frequency
- D) An airline operation frequency

103- Which is the frequency separation between consecutive frequencies in the VHF band?

- A) 8.33 kHz
- B) 50 kHz
- C) 25 kHz
- D) A & C are correct

104- Which is the maximum distance at which you might expect solid VHF contact over flat terrain at FL050?

- A) About 8 NM
- B) About 85 NM
- C) About 15 NM
- D) About 150 NM

105- To which frequency bands do the frequencies 118.000 & 136.975 MHz of the Aeronautical Mobile Service belong?

- A) Medium frequency.
- B) Very low frequency.
- C) Low frequency.
- D) Very high frequency.

106- Which frequency band contains frequencies of the Aeronautical Mobile Service?

- A) 108.000 - 117.975 MHz
- B) 118.000 - 136.975 MHz
- C) 1810 - 2850 kHz
- D) 11650 -13200 kHz

107- What does the term "AIR-GROUND COMMUNICATION" mean?

- A) One-way communication from stations or locations on the surface of the Earth.
- B) One-way communication from aircraft to stations or locations on the surface of the Earth.
- C) Two-way communication between aircraft and stations or locations on the surface of the Earth.
- D) Any communication from aircraft to ground station requiring handling by the Aeronautical Fixed Telecommunication Network (AFTN).

108- What does the term "BROADCAST" mean?

- A) A transmission where no reply is required from the receiving station.
- B) A radiotelephony transmission from ground station to aircraft in flight.
- C) A transmission of information relating to air navigation that is not addressed to a specific station or stations.
- D) A transmission containing meteorological and operational information to aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations.

109- What does the abbreviation SAR mean?

- A) Surveillance airport radar.
- B) Search and rescue.
- C) Standard arrival route.
- D) Secondary altimeter responder.

110- What does the abbreviation ATIS mean?

- A) Air traffic information service.
- B) Airport terminal information service
- C) Aircraft terminal information service
- D) Automatic terminal information service

111- What does "SELCAL" mean?

- A) A system in which radiotelephony communication between two stations can take place in both directions simultaneously.
- B) A system in which radiotelephony communication can be established between aircraft only
- C) A system which permits the selective calling of individual aircraft over radiotelephone channels linking a ground station with the aircraft.
- D) A system provided for direct exchange of information between air traffic services (ATS) units.

112- What does the abbreviation SSR mean?

- A) Runway visibility report
- B) Search and surveillance radar
- C) Surface strength of runway
- D) Secondary surveillance radar

113- What does H24 mean?

- A) Continuously operation
- B) Sunrise to Sunset.
- C) Available 24 hours a day by prior notice only.
- D) Aircraft handling available 24 hours a day.

114- The SELCAL system:

- A) Allows two way VHF data transmission between ATC and aircraft.
- B) Allows two way data transmission between operator and aircraft.
- C) Allows the aircraft to be contacted on VHF and HF frequencies that are not being monitored by the flight crew.
- D) Allows satellite communication.

115- The abbreviation "HN" means the facility described operates:

- A) Between sunrise and sunset.
- B) 24 hours a day.
- C) By prior notification.
- D) Between sunset and sunrise.

116- What does the word "CORRECT" mean?

- A) That is true.
- B) Radar contact established.
- C) Listen out on (frequency).
- D) Establish radio contact with ...

117- An aircraft is requested to fly at 2500 feet on the airfield QFE. All references to vertical position should now be referred to as:

- A) Height
- B) Altitude
- C) Flight level
- D) Pressure Altitude

118- You obtain a clearance to descend to an altitude of 2500 feet, the clearance should also include the following pressure setting or settings:

- A) QFE
- B) QNH
- C) QFE or QNH
- D) QNE

119- Which of the following statements relating to message categories is correct?

- A) The lowest priority message category is meteorological.
- B) Urgency has greatest priority over everything except distress.
- C) Flight safety messages have a higher priority than direction finding messages.
- D) Flight safety messages have a higher priority than medical urgency messages.

120- The ATC message is classified as a:

- A) Flight regularity message.
- B) Meteorological message.
- C) Flight safety message.
- D) Urgency message.

121- You receive the following ATC message:

EP-SCA clear destination Zanzan via flight plan route, initially climb to 6500 ft up to 20 DME and maintain heading 300°. This message is:

- A) Clear to takeoff and departure to Zanzan.
- B) A clearance to line-up.
- C) A flight safety message.
- D) A flight regularity message.

122- A message concerning regular information is:

- A) A flight security message.
- B) An urgency message.
- C) A flight safety message.
- D) A flight regularity message.

123- The order of priority of the following messages in the aeronautical mobile service is:

- A) Distress message, urgency message and direction finding message.
- B) Direction finding message, distress message and urgency message.
- C) Distress message, flight safety message and urgency message.
- D) Meteorological message, direction finding message and flight regularity message.

124- The clearance "CLEARED FOR IMMEDIATE TAKEOFF RUNWAY 03" is:

- A) A flight safety message.
- B) An urgency message.
- C) An unauthorized message.
- D) A flight regularity message.

125- The message addressed to an Area Control Centre "REQUEST RADAR VECTORS TO CIRCUMNAVIGATE ADVERSE WEATHER" is:

- A) A meteorological message.
- B) A flight safety message.
- C) An urgency message.
- D) A message relating to direction finding.

126- A message concerning an aircraft being threatened by grave and imminent danger, requiring immediate assistance is called:

- A) Flight safety message
- B) Distress message
- C) Urgency message
- D) Class B message

127- Flight safety messages are:

- A) Operation messages concerning non-routine landings
- B) Air traffic control messages
- C) Messages concerning the safety of an aircraft, a vessel, any other vehicle or a person
- D) Messages relating to direction finding

128- The order of priority of the following messages in the aeronautical mobile service is

- A) Flight regularity message, distress message, meteorological message.
- B) Meteorological message, direction finding message, flight safety message.
- C) Flight safety message, meteorological message, flight regularity message.
- D) Flight safety message, direction finding message, urgency message.

129- What does the term “BLIND TRANSMISSION” mean?

- A) A transmission where no reply is required from the receiving station.
- B) A transmission of information relating to air navigation that is not addressed to a specific station or stations.
- C) A transmission of messages relating to enroute weather information which may affect the safety of aircraft operations that is not addressed to a specific station or stations.
- D) A transmission from one station to another station in circumstances where two-way communication cannot be established but it is believed that the called station is able to receive the transmission.

130- Aeronautical messages are given an order of priority. Which of the following statements reflects the correct order of priority?

- A) Meteorological messages take precedence over direction finding messages.
- B) Flight safety messages will be handled before urgency messages.
- C) Messages relating to direction finding takes precedence over flight regularity messages.
- D) Flight safety messages take precedence over direction finding messages.

131- Air traffic control messages (clearances, instructions, etc.) belong to the category of:

- A) Flight safety message
- B) Flight regularity messages
- C) Service messages.
- D) Class B messages.

132- What is the correct way of spelling out HB-JYC in a radio message?

- A) Hotel Bravo India Yankee Charlie
- B) Hotel Bravo Juliet India Kilo
- C) Hotel Bravo Juliet Yankee Charlie
- D) Hotel Bravo India Victor Charlie

133- What shall the pilot's read back before "CLIMB TO FL280"?

- A) Climbing to flight level two eighty.
- B) Climbing to flight level two eight zero.
- C) Climbing two eight zero.
- D) Climbing to two eighty.

134- What is the correct way of transmitting the number 118.1 to indicate a frequency?

- A) One one eight decimal one.
- B) One eighteen one
- C) One one eight one.
- D) One one eight point one.

135- An altitude of 2600 feet is transmitted as:

- A) Two thousand six hundred.
- B) Two six hundred.
- C) Two six thousand.
- D) Two six zero zero.

136- An aircraft is flying north-east at 2.500 feet. TOWER requests heading and level. What is the correct response?

- A) 045 and 2500.
- B) Heading north-east at level 25.
- C) Heading 45 at 2500.
- D) Heading 045 at 2500.

137- What is the correct way of transmitting 1001 as a QNH?

- A) QNH one double O one.
- B) QNH one zero zero one.
- C) QNH one thousand and one.
- D) QNH one double zero one.

138- During the transmission of numbers containing a decimal point:

- A) The term DECIMAL can be omitted if no chance of misunderstanding exists.
- B) The term DECIMAL can be omitted with friendly ATS units only.
- C) The term DECIMAL must always be transmitted.
- D) The term DECIMAL must be spoken only if followed by three digits.

139- What is the correct way of transmitting the number 3500 ft when indicating an altitude?

- A) Three five double zero.
- B) Three five zero zero.
- C) Three five hundred.
- D) Three thousand five hundred.

140- What is the correct way to transmit and read back frequency 120.375 MHz (VHF channel Separated by 25 kHz)?

- A) One two zero decimal three seven.
- B) One twenty decimal three seven.
- C) One two zero decimal three seven five.
- D) One two zero three seven.

141- When indications of time are passed on the voice communication for position reports, ETAs and EATs are based on:

- A) GMT
- B) UTC
- C) LMT
- D) EST

142- The time of 1400 UTC is transmitted as:

- A) One thousand four hundred.
- B) One four zero zero.
- C) Fourteen hundred UTC.
- D) One four zero zero uniform tango charlie.

143- A time of 11:20 hours is transmitted as:

- A) One one two zero or two zero.
- B) Eleven twenty hours.
- C) Eleven twenty.
- D) Twenty past eleven.

144- The time is 04:15 PM. What is the correct way of transmitting this time if there is any possibility of confusion about the hour?

- A) One six one five.
- B) Four fifteen PM
- C) Sixteen fifteen.
- D) Four fifteen in the afternoon.

145- The time is 09:20 AM. What is the correct way of transmitting this time if there is no possibility of confusion about the hour?

- A) Two zero .
- B) Twenty.
- C) Two zero this hour.
- D) Nine twenty AM.

146- When transmitting time, which time system shall be used?

- A) Local time (LT), 24-hour clock.
- B) Co-ordinated universal time (UTC).
- C) Local time (LT) AM and PM.
- D) No specific system, as only the minutes are normally required.

147- What is meant by good microphone technique?

- A) Keep the microphone far away since it improves the readability.
- B) Speak very loudly into the microphone.
- C) Use a normal conversation tone, speak clearly and distinctly.
- D) Make large use of hesitation sounds as ER.

148- My message will be more effective and understandable if I:

- A) Speak short and clearly.
- B) Use the words twice method.
- C) Stress the end of message.
- D) Stress every beginning of message.

149- Before transmitting the pilot should:

- A) Make sure that the aircraft is leveled off.
- B) Listen out on the frequency to ensure no interference with another station already transmitting will occur.
- C) Always write the message and read it during the transmission.
- D) Make sure that the emergency frequency is tuned in at the same time.

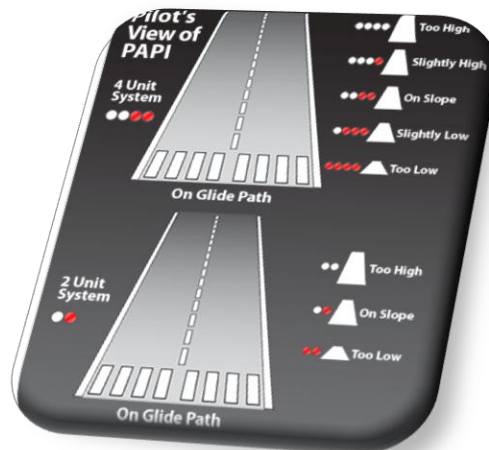
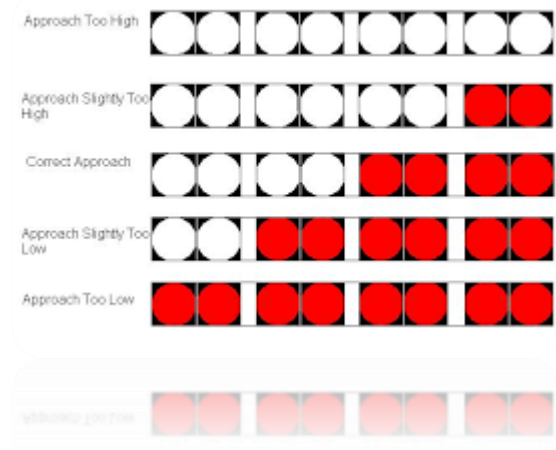
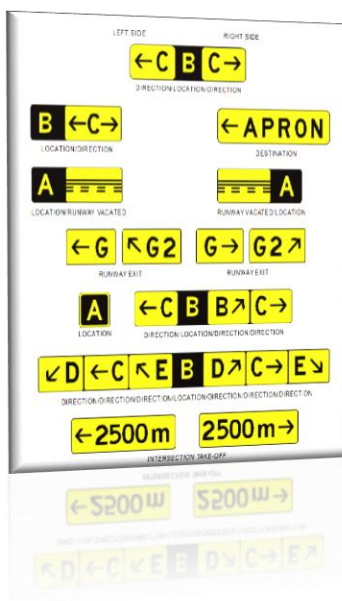
150- What does the word "CANCEL" mean?

- A) Wait and I will call you.
- B) A change has been made to your last clearance.
- C) Annul the previously transmitted clearance.
- D) Consider that transmission as not sent.

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	C	41	B	81	C	121	C
2	D	42	B	82	D	122	D
3	B	43	C	83	A	123	A
4	C	44	A	84	C	124	A
5	A	45	D	85	C	125	B
6	A	46	B	86	D	126	B
7	C	47	C	87	C	127	B
8	B	48	B	88	C	128	C
9	C	49	A	89	B	129	D
10	D	50	D	90	C	130	C
11	C	51	D	91	B	131	A
12	B	52	A	92	A	132	C
13	C	53	B	93	B	133	B
14	D	54	B	94	C	134	A
15	B	55	A	95	B	135	A
16	C	56	C	96	B	136	D
17	B	57	C	97	C	137	B
18	D	58	B	98	D	138	C
19	C	59	C	99	C	139	D
20	A	60	A	100	D	140	A
21	B	61	C	101	A	141	B
22	C	62	C	102	A	142	B
23	A	63	C	103	D	143	A
24	D	64	C	104	B	144	A
25	C	65	A	105	D	145	A
26	B	66	C	106	B	146	B
27	C	67	A	107	C	147	C
28	D	68	A	108	C	148	A
29	A	69	B	109	B	149	B
30	B	70	D	110	D	150	C
31	B	71	B	111	C		
32	A	72	B	112	D		
33	B	73	C	113	A		
34	B	74	D	114	C		
35	D	75	A	115	D		
36	A	76	C	116	A		
37	B	77	A	117	A		
38	A	78	C	118	B		
39	C	79	D	119	B		
40	C	80	B	120	C		

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Flight Environment



1- What is PAPI?

- A) Precision Approach Power Indicator.
- B) Precision Approach Path Indicator.
- C) Precision Approach Power Index.
- D) Precision Approach Path Index.

2- The “stop way” is a defined rectangular area on the ground at the end of takeoff run available prepared as a suitable area where:

- A) A landing aircraft can be stopped only in emergency.
- B) A landing aircraft can be stopped if overcoming the end of runway.
- C) An aircraft can be stopped in the case of an abandoned takeoff.
- D) An aircraft taking-off or landing can be stopped.

3- Direction signs have a background with a inscription.

- A) Red - White
- B) Yellow - Black
- C) Black - White
- D) Black – Yellow

4- A red square panel with a yellow strip along each diagonal, displayed in the signal area of an aerodrome indicates:

- A) Aerodrome is unfit for aircraft movement, and landings are prohibited.
- B) Exercise special care when landing.
- C) Normal safety service is not available.
- D) Land on paved surface only.

5- A double white cross displayed horizontally in the signal area means:

- A) Special precautions must be observed due to bad state of the taxiways.
- B) Need special precautions while approaching for landing.
- C) An area unit for the movement of aircraft.
- D) The aerodrome is being used by gliders and that glider flights are being performed.

6- The white dumb-bell with black perpendicular bar indicates that:

- A) Landing, takeoff and taxiing is allowed on runway and/or taxiway only.
- B) Taxiing need not be confined to the taxiways.
- C) Glider flying is performed outside the landing area.
- D) This aerodrome is using parallel runways.

7- Two or more white crosses, displayed on runways and taxiways, indicate that:

- A) The threshold has been displaced.
- B) The runway or taxiway should be used in emergency only.
- C) The runway or taxiway should be used with caution.
- D) The section of the runway or taxiway is unfit for aircraft movement.

8- A black letter "C" on a yellow background indicates:

- A) Where a visiting pilot should report on arrival.
- B) That glider activity is in progress.
- C) An IFR holding point.
- D) The airfield is unusable.

9- What does a red square with a yellow cross in the signal area indicate?

- A) Takeoff and taxi on the runway and taxiways only.
- B) Takeoff and landings on the runway only but taxiing on the grass permitted.
- C) Aerodrome is unfit for aircraft movements, and landings are prohibited.
- D) Caution - glider flying in progress.

10- Information signs (except location signs) consist of an inscription in on a background.

- A) Red; black
- B) Black; red
- C) Black; yellow
- D) Yellow; black

11- Runway edge lights shall be:

- A) Fixed lights showing variable red.
- B) Fixed lights showing variable white.
- C) Fixed unidirectional lights showing red in the direction of the runway.
- D) Fixed unidirectional lights showing white in the direction of the runway.

12- Runway threshold light shall be:

- A) Fixed unidirectional lights showing white in the direction of approach.
- B) Fixed unidirectional lights showing green in the direction of approach.
- C) Fixed lights green color.
- D) Fixed lights showing green or white colors.

13- Runway threshold wing bar lights shall be fixed unidirectional lights showing in the direction of approach to the runway.

- A) Green.
- B) Red.
- C) White.
- D) Blue.

14- Which of the following group shows the correct designators for three parallel runways seen from the direction of the approach?

- A) 29, 29C, 29.
- B) 29R, 29C, 29L.
- C) 29L, 29, 29R.
- D) 29L, 29C, 29R.

15- The runway edge lights shall be:

- A) Green.
- B) Blue.
- C) White.
- D) Red.

16- When taxiing on a surface with white markings, you are rolling on a:

- A) Movement area.
- B) Taxiway.
- C) Clearway.
- D) Runway.

17- Taxiway markings and aircraft stand markings are:

- A) White.
- B) Grey.
- C) Yellow.
- D) Red.

18- Taxiway edge lights shall be:

- A) Fixed showing green.
- B) Fixed showing blue.
- C) Fixed showing yellow.
- D) Flashing showing blue.

19- Runway end lights shall be:

- A) Fixed; uni-directional; red.
- B) Fixed; Omni-directional; red.
- C) Fixed; uni-directional; green.
- D) Fixed; Omni-directional; green.

20- What color is taxiway edge lighting?

- A) White.
- B) Green.
- C) Yellow.
- D) Blue.

21- Which of the following describes threshold lights in the direction of the approach to the runway?

- A) Red unidirectional.
- B) Green Omni-directional.
- C) Red Omni-directional.
- D) Green unidirectional.

22- What shape is a landing direction indicator?

- A) T
- B) I
- C) V
- D) Y

23- Runway direction is indicated by two digits:

- A) The units are expressed in 10° to the nearest 10° of True North.
- B) The units are expressed in 10° to the nearest 5° of True North.
- C) The units are expressed in 10° to the nearest 10° of the Magnetic North.
- D) The units are expressed in 10° to the nearest 5° of the Magnetic North.

24- The color of the fixed, unidirectional runway threshold and wing bar lights shall be:

- A) Yellow
- B) White
- C) Green
- D) Blue

25- What is the name for a taxiway connected to a runway at an acute angle designed to allow airplanes to turn off at higher speeds than are achieved on other exits thereby minimizing runway occupancy time?

- A) Rapid turn off lane.
- B) High speed exit lane.
- C) Rapid exit taxiway.
- D) Acute angle exit.

26- What color are emergency vehicles painted that are used on the maneuvering area of an aerodrome?

- A) Green.
- B) Orange.
- C) A single conspicuous color, preferably red or yellowish green.
- D) White and red chevrons.

27- A slightly high glide slope indication from a precision approach path indicator is:

- A) Four white lights.
- B) Three white lights and one red lights.
- C) Two white lights and two red lights.
- D) Three red lights and one white lights.

28- The numbers 08 and 26 on the approach ends of the runway indicate that the runway is oriented approximately:

- A) 008° and 026° magnetic.
- B) 080° and 260° true.
- C) 080° and 260° magnetic.
- D) 008° and 026° true.

29- When approaching taxiway holding lines from the side with the continuous line, the pilot:

- A) May continue taxiing.
- B) Should not cross the lines without ATC clearance.
- C) Should continue taxiing until all parts of the aircraft have crossed the lines.
- D) May continue taxiing if stop bars are switched on.

30- What is the purpose of the runway/runway hold position sign?

- A) Denotes entrance to runway from a taxiway.
- B) Denotes area protected for an aircraft approaching or departing a runway.
- C) Denotes intersecting runways.
- D) A & B are correct.

31- The large "X"s depicted on runway surface denotes that:

- A) Taxiway/Runway holding position marking.
- B) Displaced threshold area.
- C) Overrun area.
- D) Closed runway.

32- The area up to displaced threshold is used for:

- A) Taxiing, takeoff roll.
- B) Takeoff and landing only.
- C) Landing and taxiing only.
- D) Taxiing, takeoff and landing.

33- When approaching to land on a runway served by a visual approach slope indicator (VASI), the pilot shall:

- A) Maintain an altitude that captures the glide slope at least 2 miles downwind from the runway threshold.
- B) Maintain an altitude at or above the glide slope.
- C) Remain on the glide slope and land between the two-light bars.
- D) Descend and maintain 500 ft above minimum descend altitude up to missed approach point.

34- An above glide slope indication from a tri-color VASI is a:

- A) Red light signal.
- B) Rink light signal.
- C) Green light signal.
- D) Amber light signal.

35- (Refer to figure P-31) Illustration A indicates that the aircraft is:

- A) Below the glide slope.
- B) On the glide slope.
- C) Above the glide slope.
- D) Wrong indication.

36- (Refer to figure P-31) VASI lights as shown by illustration C indicate that the airplane is:

- A) Off course to the left.
- B) Above the glide slope.
- C) Below the glide slope.
- D) On the glide slope.

37- (Refer to figure P-31) While on final approach to a runway equipped with a standard 2-bar VASI, the lights appear as shown by illustration D. This means that the aircraft is

- A) Above the glide slope.
- B) Below the glide slope.
- C) On the glide slope.
- D) Wrong indication.

38- A glide slope indication from a pulsating approach slope indicator is a:

- A) Pulsating white light.
- B) Steady white light.
- C) Pulsating red light.
- D) Steady red light.

39- An airport's rotating beacon operated during daylight hours indicates:

- A) There are obstructions on the airport.
- B) That weather at the airport located in class D airspace is below basic VFR weather minimums.
- C) The Air Traffic Control tower is not in operation.
- D) The approach and landing operation can be made in VMC.

40- Airport taxiway edge lights are identified at night by:

- A) White directional lights.
- B) Blue Omni-directional lights.
- C) Alternate red and green lights.
- D) Green Omni-directional lights.

41- To set the high intensity runway lights on medium intensity (Pilot Controlled Lighting System), the pilot should click the microphone seven times, and then click it:

- A) One time within four seconds.
- B) Three times within three seconds.
- C) Five times within five seconds.
- D) Seven times within five seconds.

42- A lighted heliport may be identified by a:

- A) Green, yellow, and white rotating beacon.
- B) Flashing yellow light.
- C) Blue lighted square landing area.
- D) Two quick white flashes between green flashes.

43- A below glide slope indication from a tri-color VASI is a:

- A) Red light signal.
- B) Rink light signal.
- C) Green light signal.
- D) Amber light signal.

44- While operating in Class D airspace, each pilot of an aircraft approaching to land on a runway served by a visual approach slope indicator:

- A) Maintain a 3° glide until approximately 1/2 mile to the runway before going below the VASI.
- B) Maintain an altitude at or above the glide slope until a lower altitude is necessary for a safe landing.
- C) Stay high until the runway can be reached in a power-off landing.
- D) Maintain an altitude at or slightly below the glide slope until runway threshold.

45- A military air station can be identified by a rotating beacon that emits:

- A) White and green alternating flashes.
- B) Two quick, white flashes between green flashes.
- C) Green, yellow, and white flashes.
- D) Flashing yellow light.

46- How can a water airport be identified at night?

- A) Alternate white and green light flashes.
- B) Flashing white and yellow light.
- C) White flashing lights with steady green at the same location.
- D) Dual peaked (two quick) white flashes between green flashes.

47- (Refer to Figure P-33) Select the proper traffic pattern and runway for landing.

- A) Left-hand traffic and Runway 18.
- B) Right-hand traffic and Runway 18.
- C) Left-hand traffic and Runway 22.
- D) Right-hand traffic and Runway 36.

48- (Refer to figure P-33) If the wind is as shown by the landing direction indicator, the pilot should land on:

- A) Runway 18 and expect a crosswind from the right.
- B) Runway 22 directly into the wind.
- C) Runway 36 and expect a crosswind from the right.
- D) Runway 04 directly into the wind.

49- What does the outbound destination sign identify?

- A) Identifies entrance to the runway from a taxiway information for locating the departure runway.
- B) Identifies direction to take-off runways.
- C) Identifies runway on which an aircraft is located.
- D) Identifies the direction of runway in use.

50- (Refer to figure P-39) What is the sign category of top red symbol?

- A) Direction sign.
- B) Information sign.
- C) Location sign.
- D) Mandatory sign.

51- (Refer to figure P-32) That portion of the runway identified by the letter A may be used for:

- A) Landing.
- B) Taxiing and takeoff.
- C) Taxiing and landing.
- D) Taxiing, landing and takeoff.

52- (Refer to figure P-32) According to the airport diagram, which statement is true?

- A) Runway 30 is equipped at position E with emergency arresting gear to provide a means of stopping military aircraft.
- B) Takeoffs may be started at position A on Runway 12, and the landing portion of this runway begins at position B.
- C) The takeoff and landing portion of Runway 12 begins at position B.
- D) The takeoff portion of Runway 30 begins at position E.

53- (Refer to figure P-32) What is the difference between area A and area E on the airport depicted?

- A) "A" may be used for taxi and takeoff; "E" may be used only as an overrun.
- B) "A" may be used for all operations except heavy aircraft landings; "E" may be used only as an overrun.
- C) "A" may be used only for taxing; "E" may be used for all operations except landings.
- D) "A" may be used for landing; "E" may be used only as an overrun.

54- (Refer to figure P-32) Area C on the airport depicted is classified as a:

- A) Stabilized area.
- B) Multiple heliport.
- C) Closed runway.
- D) One-way taxiway.

55- (Refer to figure P-32) The arrows that appear on the end of the runway 30 indicate that the area:

- A) May be used only for taxiing.
- B) Is usable for taxiing, takeoff, and landing.
- C) Cannot be used for landing, but may be used for taxiing and takeoff.
- D) May be used for aborting takeoff in emergency situation.

56- When approaching taxiway holding lines from the side with the dashed lines, the pilot:

- A) May continue taxiing.
- B) Should not cross the lines without ATC clearance.
- C) Should continue taxiing until all parts of the aircraft have crossed the lines.
- D) Should not cross the lines until the stop bars are switched off.

57- What is the purpose of the taxiway/runway hold position sign?

- A) Denotes entrance to runway from a taxiway.
- B) Denotes area protected for an aircraft approaching or departing a runway.
- C) Denotes intersecting runways.
- D) Denotes intersecting taxiways.

58- The numbers 09 and 27 on a runway indicate that the runway is oriented approximately:

- A) 009° and 027° true.
- B) 090° and 270° true.
- C) 090° and 270° magnetic.
- D) 009° and 027° magnetic.

59- The numbers 01 and 19 on the approach ends of the runway indicate that the runway is oriented approximately:

- A) 001° and 019° true.
- B) 010° and 190° true.
- C) 001° and 019° magnetic.
- D) 010° and 190° magnetic.

60- (Refer to figure P-35) You have requested taxi instructions for takeoff using Runway 16. The controller issues the following taxi instructions: "N123, Taxi to runway 16". Where are you required to stop in order to be in compliance with the controller's instructions?

- A) 5 (Five).
- B) 6 (Six).
- C) 9 (Nine).
- D) 11 (Eleven).

61- (Refer to figure P-34) Which runway and traffic pattern should be used as indicated by the wind cone in the segmented circle?

- A) Right-hand traffic on Runway 09.
- B) Right-hand traffic on Runway 18.
- C) Left-hand traffic on Runway 36.
- D) Left-hand traffic on Runway 27.

62- VFR approaches to land at night should be accomplished:

- A) At a higher airspeed.
- B) With a steeper descent.
- C) The same as during daytime.
- D) At a higher altitude.

63- Which is the correct traffic pattern departure procedure to use at a non-controlled airport?

- A) Depart in any direction consistent with safety, after crossing the airport boundary.
- B) Make all turns to the left.
- C) Comply with any ICAO traffic pattern established for the airport.
- D) Make all turns to the right.

64- The recommended entry position to an airport traffic pattern is:

- A) 45° to the base leg just below traffic pattern altitude.
- B) To enter 45° at the midpoint of the downwind leg at traffic pattern altitude.
- C) To cross directly over the airport at traffic pattern altitude and join the downwind leg.
- D) To enter 90° at the midpoint of the downwind leg at 500 ft above traffic pattern altitude.

65- (Refer to figure P-34) The segmented circle indicates that the airport traffic is:

- A) Left-hand for Runway 36 and right-hand for Runway 18.
- B) Left-hand for Runway 18 and right-hand for Runway 36.
- C) Left-hand for Runway 09 and right-hand for Runway 27.
- D) A & C are correct.

66- (Refer to figure P-34) The traffic patterns indicated in the segmented circle have been arranged to avoid flights over an area to the:

- A) South of the airport.
- B) North of the airport.
- C) Southeast of the airport.
- D) Southwest of the airport.

67- (Refer to figure P-34) The segmented circle indicates that a landing on Runway 26 will be with a:

- A) Right-quartering headwind.
- B) Left-quartering headwind.
- C) Right-quartering tailwind.
- D) Left-quartering tailwind.

68- When turning onto a taxiway from another taxiway, the “taxiway directional sign” indicates:

- A) Direction the take-off runway.
- B) Designation and direction of taxiway leading out of an intersection.
- C) Designation and direction of exit taxiway from runway.
- D) Direction of taxiway leading out to airplane's stand.

69- (Refer to figure P-36) Use the sign and taxiway diagram you are approaching the intersection on taxiway 5 and see the sign at the left of the intersection. Taxiway number 2 is identified as:

- A) A
- B) F
- C) T
- D) E

70- (Refer to figure P-37) The taxiway ending marker:

- A) Indicates taxiway does not continue.
- B) Identifies area where aircraft are prohibited.
- C) Provides general taxiing direction to named taxiway.
- D) Denotes one-way direction taxiway.

71- (Refer to figure P-39) The pilot generally calls ground control after landing when the aircraft is completely clear of the runway. This is when the aircraft:

- A) Passes the red symbol shown at the top of the figure.
- B) Is on the dashed-line side of the middle symbol.
- C) Is past the solid-line side of the middle symbol.
- D) None of above.

72- (Refer to figure P-39) The red symbol at the top would most likely be found.

- A) On a taxiway intended to be used in only one direction.
- B) At an intersection where a roadway may be mistaken as a taxiway.
- C) Near the approach end of ILS runways.
- D) A & B are correct.

73- (Refer to figure P-39) While clearing an active runway you are most likely clear of the ILS critical area when you pass which symbol?

- A) Top red.
- B) Middle yellow.
- C) Bottom yellow.
- D) B & C are correct.

74- (Refer to figure P-39) When taxiing up to an active runway, you are likely to be clear of the ILS critical area when short of which symbol?

- A) Bottom yellow.
- B) Top red.
- C) Middle yellow.
- D) A & C are correct.

75- (Refer to figure P-39) which symbols does not directly address runway incursion with other aircraft?

- A) Top red.
- B) Middle yellow.
- C) Bottom yellow.
- D) All answers are correct.

76- (Refer to figure P-38) You are holding short for an intersection departure on Runway 08 with the sign in front of you. After turning onto the runway you should:

- A) Turn right.
- B) Turn left.
- C) Insufficient information is given.
- D) Go straight ahead.

77- (Refer to figure P-40) Sign "1" is an indication:

- A) Of an area where aircraft are prohibited.
- B) That the taxiway does not continue.
- C) Of the general taxiing direction to a taxiway.
- D) Of one-way taxiway and direction of movement.

78- How can you determine if another aircraft is on a collision course with your aircraft?

- A) The nose of each aircraft is pointed at the same point in space.
- B) The other aircraft will always appear to get larger and closer at a rapid rate.
- C) There will be no apparent relative motion between your aircraft and the other aircraft.
- D) There will be a small lateral relative motion between your aircraft and the other aircraft.

79- What is the general direction of movement of the other aircraft during a night flight you observe a steady white light and a rotating red light ahead and at your altitude? The other aircraft is:

- A) Headed away from you.
- B) Crossing to your left.
- C) Approaching you head-on.
- D) Crossing to your right.

80- When in the vicinity of a VOR which is being used for navigation on VFR flight, it is important to:

- A) Make 90° left and right turns to scan for other traffic.
- B) Exercise sustained vigilance to avoid aircraft that may be converging on the VOR from other directions.
- C) Pass the VOR on the right side of the radial to allow room for aircraft flying in the opposite direction on the same radial.
- D) Make one orbit to right and then to the left over the VOR.

81- During a takeoff made behind a departing large jet airplane, the pilot can minimize the hazard of wingtip vortices by:

- A) Being airborne prior to reaching the jet's flight path until able to turn clear of its wake.
- B) Maintaining extra speed on takeoff and climb out.
- C) Extending the takeoff roll and not rotating until well beyond the jet's rotation point.
- D) Make sure you are slightly below the path of jet and perpendicular to the course.

82- When an aircraft is operating its Secondary Surveillance Radar in Mode C an air traffic controllers presentation gives information regarding the aircraft's indicated flight level that is accurate to within:

- A) ± 50 ft.
- B) ± 75 ft.
- C) ± 100 ft.
- D) ± 500 ft.

83- The spacing between the two pulses transmitted by an SSR interrogator decides:

- A) The identification of that SSR.
- B) What mode is used.
- C) What service may be provided by the SSR.
- D) The indication of standing by.

84- The ATC transponder system, excluding Mode S, contains:

- A) Four modes, each 1024 codes.
- B) Two modes, each of 4096 codes.
- C) Four modes, each 4096 codes.
- D) Three modes, each 4096 codes.

85- Why do clouds not appear on secondary radar screens:

- A) Too high a frequency.
- B) Too low a frequency.
- C) The transmit and receive signals are on different frequency.
- D) SSR operates on echo-principle.

86- SSR is not affected by weather clutter because:

- A) It uses different frequencies for transmission and reception.
- B) The wavelength is too short to be reflected from cloud droplets.
- C) The equipment uses a moving target indicator.
- D) SSR operates on echo-principle.

87- What most affects the range available from a secondary radar?

- A) The transmission power of aircraft interrogator.
- B) The transmission power of ground transponder.
- C) The height of aircraft and height of ground interrogator.
- D) The frequency used in ground interrogator.

88- Which one of the following is an advantage of a SSR when compared to a primary radar system?

- A) The relatively small ground antenna transmits no side lobes, thus eliminating the danger of false replies from the airborne transponder.
- B) The required power of transmission from the ground equipment is reduced.
- C) Possibility of obtaining speed information for aircraft within Range.
- D) The height of aircraft and height of ground interrogator does not affect coverage range.

89- When both SSR and primary radar is presented on the controller's display:

- A) The SSR information is more accurate in bearing and distance.
- B) The primary radar information is superfluous.
- C) The primary radar information is more accurate in bearing and distance.
- D) The primary radar displays no weather clutter on radar scope.

90- With regard to SSR:

- A) The interrogator is on the ground and the transponder is on the ground.
- B) The interrogator is on the ground and the transponder is in the aircraft.
- C) The interrogator is in the aircraft and the transponder is on the ground.
- D) The interrogator is in the aircraft and the transponder is in the aircraft.

91- Why is a secondary radar display screen free of storm clutter?

- A) The principle of each return is not used in secondary radar.
- B) The frequencies employed are too high to give returns from moisture sources.
- C) A moving target indicator facility suppresses the display of static or near static returns.
- D) The PRF is jittered.

92- When the ATC transponder "IDENT" button is pressed by the pilot:

- A) The airplane's identification will be sent to all SSRs within range.
- B) The airplane's echo on the controller's display will flash or "fill in".
- C) Mode A will automatically be selected.
- D) Mode C will automatically be activated.

93- SSR in ATC use:

- A) In complementary to primary radar.
- B) Suffers from greater attenuation (than primary radar) due to the higher frequency used.
- C) Replaces primary radar.
- D) For reducing power consumption only.

94- Why is the effect of returns from storms not a problem with SSR?

- A) The frequency is too high.
- B) SSR does not use the echo principle.
- C) The PRF is jittered.
- D) Storm and heavy precipitation cannot reflect the radio pulses.

95- In the SSR response, the operation of the transponder IDENT button:

- A) Transmits the airplane's registration or flight number as a data Coded sequence.
- B) Sends a special pulse after the normal response pulse train.
- C) Sends a special pulse before the normal response pulse train.
- D) Sends a special pulse before and after the normal response pulse train.

96- A transponder capable of mode A or mode C operation only will:

- A) Not respond to interrogations made on mode S.
- B) Respond to mode S interrogations but cannot send data.
- C) Respond to mode S interrogations with limit data.
- D) Respond to mode S interrogations only when there is a risk of aircraft proximity.

97- A mode S transponder will:

- A) Not respond to interrogations made on mode A.
- B) Respond normally to mode A or C interrogations.
- C) Respond to mode A interrogation but not mode C.
- D) Respond to mode C interrogations but not mode A.

98- The code transmitted by a SSR transponder consists of:

- A) Phases differences.
- B) Pulses.
- C) Frequency differences.
- D) Amplitude differences.

99- Which one of the following switch positions should be used when selecting a code on the transponder?

- A) NORMAL.
- B) STBY (standby).
- C) IDENT (identification).
- D) ALT.

100- The accuracy of SSR altitude (Mode C) as displayed to the air traffic controller is :

- A) ± 25 ft.
- B) ± 50 ft.
- C) ± 75 ft.
- D) ± 100 ft.

101- With regard to the advantages of SSR which of the following statements is correct?

- A) Little power is required to enable a relatively long range.
- B) No aircraft maneuvers are necessary for identification.
- C) Range, bearing and height can be calculated from reply signals.
- D) All answers are correct.

102- With SSR, interrogation and response signals:

- A) Are separated by 63 MHz.
- B) Must be set by the pilot but are always 60 MHz apart.
- C) Are standard frequencies separated by 60 MHz.
- D) Are standard frequencies separated by 90 MHz.

103- Which of the following statements regarding Mode S is incorrect?

- A) Mode S is used to assist in GPS calculations.
- B) Data transmission and exchange is conducted in mode S.
- C) Mode S transponders reduced RT traffic and also provide the aircraft with the data link facility.
- D) A mode S interrogator, when installed, will also collect data from old mode A and C transponders.

104- Which statement regarding Mode S transponders is most correct?

- A) Mode S transponders reduced RT traffic and provide a data link facility.
- B) Mode S transponders are used with TCAS III.
- C) Mode S transponders are used to assist GPS positioning.
- D) Mode S transponders are used to provide separation for flow management.

105- Data transmission and exchange is conducted in:

- A) Mode A.
- B) Mode C.
- C) Mode S.
- D) Mode C & Mode S.

106- A secondary radar can provide up to 4096 different codes. These 4096 codes can be used in:

- A) Mode C and A only.
- B) Mode S only.
- C) Mode C only.
- D) All modes.

107- In SSR, the interrogation use different modes. If altitude reporting is required, the airplane's transponder should be set to "ALT" and will respond to:

- A) Mode C interrogation only.
- B) Mode A interrogation only.
- C) Mode C and A interrogation.
- D) Mode S interrogations only.

108- What SSR modes are frequently in use by ATC?

- A) Mode S and mode D.
- B) Mode A and mode B.
- C) Mode A and mode C.
- D) Mode S and Mode A.

109- Which of the following equipment works on the interrogator/transponder principle?

- A) Secondary Surveillance Radar (SSR).
- B) Global Positioning System (GPS).
- C) Airborne Weather Radar (AWR).
- D) Primary Surveillance Radar (PSR).

110- On a typical computer generated SSR display the following data on a particular flight will be shown:

- A) Squawk code, flight level, ground speed and airborne call-sign.
- B) Destination, flight level, ground speed and airborne call-sign.
- C) Squawk code, magnetic heading, ground speed and airborne call-sign.
- D) Squawk code, Destination, magnetic heading, ground speed and airborne call-sign.

111- A radar which employs an interrogator/transponder technique is:

- A) Primary radar.
- B) Continuous wave radar.
- C) Secondary radar.
- D) A & C are correct.

112- The two main design functions of Secondary Surveillance Radar (SSR) mode S are:

- A) The elimination of ground to air communications and the introduction of automatic separation between aircraft using TCAS II.
- B) Collision avoidance using TCAS II and improved long range communication capability.
- C) Air to ground and ground to air data link communications and improved ATC aircraft surveillance capability.
- D) All answers are correct.

113- The availability of 4096 codes in SSR is applicable to mode:

- A) A
- B) C
- C) S
- D) All answers are correct.

114- When a mode C interrogation is responded to, vertical position of the aircraft is coded and transmitted. This vertical position is referred to:

- A) The sub-scale of the altimeter.
- B) Area QNH.
- C) 1013.2 hPa.
- D) Area QFE.

115- The selection of code 2000 on an aircraft SSR transponder indicates:

- A) Unlawful interference with the planned operation of the flight.
- B) Transponder malfunction.
- C) Entry into airspace from an area where SSR operation has not been required (IFR flights).
- D) VFR normal operation where SSR operation has not been required.

116- When mode C is selected on the aircraft SSR transponder the additional information transmitted is:

- A) Height based on QFE.
- B) Altitude based on regional QNH.
- C) Flight level based on 1013.25 hPa.
- D) Aircraft identification only.

117- What information may be displayed on an ATC radar screen connected only to a primary radar system?

- A) Aircraft position only.
- B) Aircraft position and SSR code.
- C) Aircraft position, SSR code and altitude.
- D) Aircraft pressure altitude only.

118- Selection of mode C on the SSR provides ATC with information based on:

- A) Aircraft height above the QFE.
- B) Aircraft altitude as indicated in the captain's altimeter.
- C) Aircraft pressure altitude.
- D) Aircraft position only.

119- Consider the following statements on SSR mode S:

- A) Mode S will have the ability to transmit short messages from the ground to a particular aircraft.
- B) A mode S interrogator, when installed, will also collect data from old mode A and C transponders.
- C) Mode S will be able to address any particular of some 16 million aircraft.
- D) All statements are correct.

120- What is the maximum number of usable SSR transponder codes?

- A) 4960
- B) 3600
- C) 4096
- D) 1000

121- The SSR conspicuity code is:

- A) 1200
- B) 7000
- C) 2000
- D) 0033

122- The ground SSR equipment incorporates a transmitter and receiver respectively operating in the following frequencies (transmitter; receiver):

- A) 1090 MHz; 1090 MHz
- B) 1090 MHz; 1030 MHz
- C) 1030 MHz; 1090 MHz
- D) 1030 MHz; 1060 MHz

123- The frequency of an SSR ground transmitter is:

- A) 1050 ± 0.5 MHz
- B) 1030 ± 0.2 MHz
- C) 1090 ± 0.3 MHz
- D) 1060 ± 0.3 MHz

124- The SSR ground transceiver interrogates on and receives responses on

- A) 1030 MHz; 1030 MHz
- B) 1030 MHz; 1090 MHz
- C) 1090 MHz; 1030 MHz
- D) 1090 MHz; 1090 MHz

125- What are the frequencies used for interrogation and response for SSR?

- A) 1090 MHz for interrogation from the ground, 1030 MHz for response from the aircraft.
- B) 1030 MHz for interrogation from the ground, 1090 MHz for response from the aircraft.
- C) 1090 MHz for interrogation from the aircraft, 1030 MHz for response from the ground.
- D) 1030 MHz for interrogation from the aircraft, 1090 MHz for response from the ground.

126- When an aircraft is operating its SSR in Mode C an air traffic controller's presentation gives information regarding the aircraft's indicated flight level in increments of:

- A) 200 ft.
- B) 100 ft.
- C) 250 ft.
- D) 500 ft.

127- With reference to SSR, what code is used to indicate transponder altitude reporting failure:

- A) 9999
- B) 0000
- C) 4096
- D) 7000

128- Choose the correct statement regarding wake turbulence.

- A) Vortex generation begins with the initiation of the takeoff roll.
- B) The primary hazard is loss of control because of induced roll.
- C) The greatest vortex strength is produced when the generating airplane is heavy, clean and fast.
- D) Helicopters generate downwash turbulence, no vortex circulation.

129- What preparation should a pilot make to adapt the eyes for night flying?

- A) Wear sunglasses after sunset until ready for flight.
- B) Avoid red lights at least 30 minutes before the flight.
- C) Avoid bright white lights at least 30 minutes before the flight.
- D) Close eyes for a few seconds in dark environment just before the flight.

130- Except in Alaska, during what time period should lighted position lights be displayed on an aircraft?

- A) End of evening civil twilight to the beginning of morning civil twilight.
- B) 1 hour after sunset to 1 hour before sunrise.
- C) Sunset to sunrise.
- D) From engine running.

131- During a night flight, you observe a steady red light and a flashing red light ahead and at the same altitude. What is the general direction of movement of the other aircraft?

- A) The other aircraft is crossing to the left.
- B) The other aircraft is crossing to the right.
- C) The other aircraft is approaching head-on.
- D) The other aircraft is flying away from you.

132- During a night flight, you observe a steady white light and a flashing red light ahead and at the same altitude. What is the general direction of movement of the other?

- A) The other aircraft is flying away from you.
- B) The other aircraft is crossing to the left.
- C) The other aircraft is crossing to the right.
- D) The other aircraft is approaching head-on.

133- During a night flight, you observe steady red and green lights ahead and at the same altitude. What is the general direction of movement of the other aircraft?

- A) The other aircraft is crossing to the left.
- B) The other aircraft is flying away from you.
- C) The other aircraft is approaching head-on.
- D) The other aircraft is crossing to the right.

134- The best method to use when looking for other traffic at night is to:

- A) Look to the side of the object and scan slowly.
- B) Scan the visual field very rapidly.
- C) Look to the side of the object and scan rapidly.
- D) Regularly spaced concentration on the 3-, 9- and 12-o'clock position.

135- The most effective method of scanning for other aircraft for collision avoidance during night time hours is to use:

- A) Regularly spaced concentration on the 3-, 9- and 12-o'clock position.
- B) A series of short, regularly spaced eye movements to search each 30-degree sector.
- C) Peripheral vision by scanning small sectors and utilizing off center viewing.
- D) Scan slowly by looking directly at a series of short intervals.

136- What affect does haze have on the ability to see traffic of terrain features during flight?

- A) Haze causes the eyes to focus at infinity.
- B) The eyes tend to overwork in haze and do not detect relative movement easily.
- C) All traffic or terrain features appear to be farther away than their actual distance.
- D) All the answers are correct.

137- The most effective method of scanning for other aircraft for collision avoidance during daylight hours is to use.

- A) Regularly spaced concentration on the 3-, 9-, and 12 o'clock positions.
- B) A series of short, regularly spaced eye movements to search each 10-degree sector off center viewing.
- C) Peripheral vision by scanning small sectors and utilizing off center viewing.
- D) A series of short, regularly spaced eye movements not exceed 10-degree sector that bring successive areas of the sky into the central visual field.

138- Which technique should a pilot use to scan for traffic to the right and left during straight-and-level flight?

- A) Systematically focus on different segments of the sky for short intervals.
- B) Concentrate on relative movement detected in the peripheral vision area.
- C) Continuous sweeping of the windshield from right to left.
- D) Regularly spaced concentration on the 3-, 9-, 11- and 13-o'clock positions.

139- Most midair collision accidents occur during:

- A) Hazy days.
- B) Clear days.
- C) Cloudy nights.
- D) Bad weather condition at nights.

140- Prior to starting each maneuver, pilots should:

- A) Check altitude, airspeed, and heading indications.
- B) Visually scan the entire area for collision avoidance.
- C) Announce their intentions on the nearest CTAF.
- D) Continuous sweeping of the windshield from right to left.

141- What is the most effective way to use the eyes during night flight?

- A) Look only at far away, dim lights
- B) Scan slowly to permit off center viewing.
- C) Concentrate directly on each object for a few seconds.
- D) Scan slowly and look directly at objects.

142- When taxing with strong quartering tailwinds, which aileron positions should be used?

- A) Aileron down on the downwind side.
- B) Ailerons neutral.
- C) Aileron down on the side from which the wind is blowing.
- D) Ailerons down on the side from which the wind is blowing and elevator up.

143- Which aileron positions should a pilot generally use when taxing in strong quartering headwinds?

- A) Aileron up on the side from which the wind is blowing.
- B) Aileron down on the side from which the wind is blowing.
- C) Ailerons neutral.
- D) Ailerons down on the side from which the wind is blowing and elevator down.

144- During a night flight, you see a steady white light, a steady green light, and a flashing red light. the other aircraft is:

- A) Approaching head on.
- B) Approaching, but will pass from right to left.
- C) Flying away from you and will cross from left to right.
- D) Flying away from you and will cross from right to left.

145- During a night flight, you see a steady red light and a flashing red light ahead, the other aircraft is:

- A) Crossing from right to left.
- B) Crossing from left to right.
- C) Approaching head on.
- D) Headed away from you.

146- (Refer to figure P-31) Which illustration is an incorrect indication?

- A) D
- B) B
- C) C
- D) A

147- Which airport sign category does not include arrow?

- A) Mandatory signs.
- B) Outbound destination signs.
- C) Information signs.
- D) Location signs.

148- Location signs have a background with a inscription.

- A) Red - White
- B) Yellow - Black
- C) Black - White
- D) Black – Yellow

149- “A defined rectangular area on the ground at the end of takeoff run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned takeoff” is the definition for:

- A) Runway strip.
- B) Runway end safety area.
- C) Stopway.
- D) Clearway.

150- Transponders in Mode S provide the altitude information in increments.

- A) ± 25 ft.
- B) ± 50 ft.
- C) ± 75 ft.
- D) ± 100 ft.

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	B	41	C	81	A	121	B
2	C	42	A	82	A	122	C
3	B	43	A	83	B	123	B
4	A	44	B	84	B	124	B
5	D	45	B	85	C	125	B
6	B	46	B	86	A	126	B
7	D	47	B	87	C	127	B
8	A	48	A	88	B	128	B
9	C	49	B	89	C	129	C
10	C	50	D	90	B	130	C
11	D	51	B	91	A	131	A
12	B	52	B	92	B	132	A
13	A	53	A	93	A	133	C
14	D	54	C	94	B	134	A
15	C	55	C	95	B	135	C
16	D	56	C	96	B	136	C
17	C	57	A	97	B	137	D
18	B	58	C	98	B	138	A
19	A	59	D	99	B	139	B
20	D	60	A	100	B	140	B
21	D	61	C	101	D	141	B
22	A	62	C	102	C	142	C
23	C	63	C	103	A	143	A
24	C	64	B	104	A	144	C
25	C	65	D	105	C	145	A
26	C	66	C	106	D	146	B
27	B	67	A	107	C	147	D
28	C	68	B	108	C	148	D
29	B	69	B	109	A	149	C
30	C	70	A	110	A	150	A
31	D	71	C	111	C		
32	A	72	D	112	C		
33	B	73	C	113	D		
34	D	74	A	114	C		
35	B	75	A	115	C		
36	B	76	B	116	C		
37	B	77	B	117	A		
38	B	78	C	118	C		
39	B	79	A	119	D		
40	B	80	B	120	C		

172

Flight Planning



1- Given:

True course (TC): 017°
Wind: 160°/25 kts
True airspeed (TAS): 180 kts

Find wind correction angle (WCA) and ground speed (G/S):

- A) WCA -5°, G/S 199 kts.
- B) WCA +5°, G/S 161 kts.
- C) WCA +5°, G/S 199 kts.
- D) WCA +5°, G/S 161 kts.

2- An aircraft is flying at an indicated altitude of 5000 ft. where the OAT is -10°C. What is the aircraft's true altitude?

- A) 4700 ft.
- B) 5260 ft.
- C) 5120 ft.
- D) 4600 ft.

3- Given:

Variation: 15°E
Deviation: 6°W
Heading: 080° (T)

Determine aircraft's compass and magnetic headings:

- A) 071°, 065°
- B) 065°, 071°
- C) 086°, 095°
- D) 095°, 086°

4- The measured course 042° T. The variation in the area is 6°W and the wind is calm. The deviation is 4°W. In order to follow this course, the pilot must fly a compass heading of:

- A) 040°
- B) 044°
- C) 052°
- D) 058°

5- Given:

True course: 017°
W/V: 340°/30
TAS: 420 kts

Find: 1) The wind correction angle (WCA)

2) The ground speed (G/S)

- A) (1)+2°; (2) 416 kts.
- B) (1)+2°; (2) 396 kts.
- C) (1)-2°; (2) 426 kts.
- D) (1)-2°; (2) 396 kts.

6- Given:

Variation: 12°W

Deviation: 3°E

Heading: 180° (T)

Determine aircraft's compass and magnetic headings:

- A) 168°, 171°
- B) 168°, 165°
- C) 192°, 189°
- D) 189°, 192°

7- (Refer to figure P-24) The planned flight is over a distance of 440 NM. Based on the wind charts at altitude the following components are found:

FL050: -30 kts

FL100: -50 kts

FL 180: -70 kts

The Operations Manual in appendix details the aircraft performances. Which of the following flight levels gives the best range performance?

- A) FL050
- B) Either FL050 or FL100
- C) FL180
- D) FL100

8- (Refer to figure P-25) Finish the endurance / fuel calculations and determine ATC endurance for a twin jet airplane, with the help of the table provided. Contingency is 5% of the planned Trip Fuel and fuel flow for extra fuel is 2.400 kg/hr:

- A) ATC endurance: 04:06
- B) ATC endurance: 03:52
- C) ATC endurance: 03:37
- D) ATC endurance: 04:12

9- (Refer to figure P-12) What is the fuel, time and distance to climb from an aerodrome at sea level up to FL100 where the outside air temperature is 0°C?

- A) 13 USG, 24 min, 45 NM.
- B) 9 USG, 16 min, 28 NM.
- C) 9 USG, 14 min, 27 NM.
- D) 5 USG, 10 min, 16 NM.

10- (Refer to figure P-16) At 6000 ft what is the range of the aircraft at full throttle with 2500 RPM set?

- A) 840 NAM
- B) 872 NAM
- C) 914 NAM
- D) 756 NAM

11- (Refer to figure P-14) A flight is to be made in a multi-engine piston airplane. The cruising level will be 11000 ft. The outside air temperature at FL110 is -15 °C. The usable fuel is 123 US gallons. The power is set to economic cruise. Find the range in NM with 45 min reserve fuel at 45% power.

- A) 752 NM
- B) 852 NM
- C) 610 NM
- D) 602 NM

12- (Refer to figure P-13) Using the following information, calculate the range. Given:

Airplane mass at start up:	3663 lbs
Fuel load (density 6lbs/gal):	74 gal
Takeoff altitude:	sea level
Headwind:	40 kts
Cruise altitude:	8000 ft
Power setting:	full throttle
	2300 RPM
	20 °c lean of peak

- A) 633 NM
- B) 844 NM
- C) 730 NM
- D) 547.5 NM

13- (Refer to figure P-15) A flight is to be made from one airport (elevation 3000 ft) to another in a multi-engine piston airplane. The cruising level will be FL110. The temperature at FL110 is ISA -10°C. The temperature at the departure aerodrome is -1°C. Calculate the fuel to climb with mixture rich.

- A) 10 US gallons.
- B) 7 US gallons.
- C) 12 US gallons.
- D) 15 US gallons.

14- (Refer to figure P-17) For a flight departing from MSL at 3663 lbs, cruising at FL080 at 2300 RPM, 20°C lean of peak EGT, in 40 kts headwind, calculate endurance:

- A) 4.75 hrs.
- B) 5.3 hrs.
- C) 6.1 hrs.
- D) 6.55 hrs.

15- (Refer to figure P-19) A flight is to be made to an airport, pressure altitude 3000 ft, in a multi-engine piston airplane. The forecast OAT for the airport is -1°C . The cruising level will be FL110, where OAT is -10°C . Calculate the still air descent distance for:

- 145 KIAS
- Rate of descent 1000 ft/min
- Gear and flaps up

- A) 25 NM
- B) 29 NM
- C) 36 NM
- D) 20 NM

16- You are required to uplift 40 US Gallons of AVGAS with specific gravity of 0.72. How many liters and kilograms is this?

- A) 109 liters, 151 kg.
- B) 182 liters, 131 kg.
- C) 182 liters, 289 kg.
- D) 151 liters, 109 kg.

17- (Refer to figure P-20) For the Multi engine Piston Airplane, if the OAT is -20°C at 19000 ft, the TAS at long-range power setting is:

- A) 159 knots
- B) 162 knots
- C) 165 knots
- D) 168 knots

18- (Refer to figure P-11) Given:

FL075

OAT: $+5^{\circ}\text{C}$

During climb: Average headwind component 20 kts

Takeoff from MSL with the initial mass of 3650 lbs.

Find the still air distance (NAM) and ground distance (NM) using the graph TIME, FUEL, DISTANCE TO CLIMB:

- A) 18 NAM, 15 NM.
- B) 16 NAM, 18 NM.
- C) 18 NAM, 13 NM.
- D) 14 NAM, 18 NM.

19- (Refer to figure P-28) On a standard day what is the TAS and fuel flow in USG at 10000 ft?

- A) 157 kts, 11.0 GPH.
- B) 137 kts, 66.2 GPH.
- C) 157 kts, 20.7 GPH.
- D) 157 kts, 11.4 GPH.

20- (Refer to figure P-21) Given:

- FL075
- OAT +10 °C
- 23.0 in.Hg (or full throttle) at 2300 RPM

Find the fuel flow in gallons per hour (GPH) and TAS.

- A) 71.1 GPH, 143 kts.
- B) 11.6 GPH, 143 kts.
- C) 11.7 GPH, 160 kts.
- D) 68.5 GPH, 160 kts.

21- When calculating the fuel required to carry out a given flight, one must take into account:

1. the wind
2. foreseeable airborne delays
3. other weather forecasts
4. Any foreseeable conditions which may delay landing

The combination which provides the correct statement is:

- A) 1,2,3
- B) 1,3
- C) 2,4
- D) 1,2,3,4

22- (Refer to figure P-18) Given the following data:

FL075

Lean mixture

Economy Power setting

Find the endurance with no reserve:

- A) 04:30
- B) 05:01
- C) 06:12
- D) 05:11

23- The Final Reserve Fuel for aircraft with piston engines should be:

- A) Fuel to fly for 30 minutes.
- B) Fuel to fly for 60 minutes.
- C) Fuel to fly for 45 minutes.
- D) 5 minutes fuel at the holding speed at 1.500 ft above the aerodrome in standard conditions.

24- Given:

Dry Operating Mass (DOM):	33510 kg
Load:	7600 kg
Trip Fuel:	2040 kg
Final reserve fuel:	983 kg
Alternate fuel:	1100 kg
Contingency fuel:	5% of Trip Fuel

If the flight is performed as planned, which of the listed estimated masses is correct?

- A) Estimated Takeoff Mass is 45233 kg.
- B) Estimated Landing Mass at destination is 43295 kg.
- C) Estimated Landing Mass at destination is 43193 kg.
- D) Estimated Landing Mass at alternate is 42093 kg.

25- (Refer to figure P-26) A flight has to be made with a multi-engine piston airplane. For the fuel calculations take 5 US gallons for the taxi, and an additional 13 minutes at cruise condition to account for climb and descent. Calculated time overhead to overhead is 2 hrs 37 min.

- Power setting is 65%, 2500 RPM
- Calculated reserve fuel is 30% of the Trip Fuel
- FL120, OAT is 1°C

Find the minimum Block Fuel:

- A) 90 US gallons.
- B) 86 US gallons.
- C) 76 US gallons.
- D) 118 US gallons.

26- For a planned flight the calculated fuel is as follows:

Flight time:	02:42 min
Taxi fuel:	9 kg
Block Fuel:	136 kg

The reserve fuel, at any time, should not be less than 30% of the remaining Trip Fuel.

How much fuel should remain after 1 hr. 30 min of flight time?

- A) 54 kg Trip Fuel and 16 kg reserve fuel.
- B) 33 kg Trip Fuel and 10 kg reserve fuel.
- C) 25 kg Trip Fuel and 8 kg reserve fuel.
- D) 43 kg Trip Fuel and 13 kg reserve fuel.

27- In a flight plan when the destination aerodrome is A and the alternate aerodrome is B, the final reserve fuel for a turbojet engine airplane corresponds to:

- A) 15 minutes holding 2000 feet above aerodrome A.
- B) 30 minutes holding 2000 feet above aerodrome B.
- C) 30 minutes holding 1500 feet above aerodrome B.
- D) 30 minutes holding 1500 feet above aerodrome A.

28- A jet airplane is to fly from A to B. The minimum final reserve fuel must allow for:

- A) 20 minutes hold over alternate airfield.
- B) 30 minutes hold at 1500 ft above destination aerodrome elevation, when no alternate is required.
- C) 30 minutes hold at 1500 ft above mean sea level.
- D) 15 minutes hold at 1500 ft above destination aerodrome elevation.

29- The required time for final reserve fuel for turbojet airplane is:

- A) 45 min.
- B) 30 min.
- C) 60 min.
- D) Variable with wind velocity.

30- (Refer to figure P-23) A flight has to be made with a single engine airplane. For the fuel calculation allow:

- 10 lbs fuel for startup and taxi
- 3 minutes and 1 gallon of additional fuel to allow for climb
- 10 minutes and no fuel correction for the descent
- Planned flight time (takeoff to landing) is 3 hrs 12 minutes
- Reserve fuel 30% of the Trip Fuel
- Power setting is 25 in.Hg (or full throttle), 2.100 RPM, 20°C lean
- FL70 and the OAT is 10°C

The Minimum Block Fuel is:

- A) 278 lbs
- B) 268 lbs
- C) 252 lbs
- D) 215 lbs

31- (Refer to figure P-27) Given:

Dry Operating Mass (DOM):	33500 kg
Traffic load:	7600 kg
Maximum Allowable Takeoff Mass:	66200 kg
Standard taxi fuel:	200 kg
Tank capacity:	16100 kg

The maximum possible takeoff fuel is:

- A) 15900 kg
- B) 25300 kg
- C) 16300 kg
- D) 17300 kg

32- For a planned flight the calculated fuel is as follows:

Flight time: 2 hrs. 42 min

Block Fuel: 136 kg

Taxi fuel: 9 kg

The reserve fuel, at any time, should be not less than 30% of Trip Fuel remaining. How many kg of fuel should remain after 2 hours?

- A) 33 kg trip and 10 kg reserve.
- B) 25 kg trip and 8 kg reserve.
- C) 23 kg trip and 10 kg reserve.
- D) 33 kg trip and no reserve.

33- (Refer to figure P-22) A flight has to be made with the single engine airplane. For the fuel calculation allow:

- 10 lbs fuel for startup and taxi
- 3 minutes and 1 gallon of additional fuel to allow for the climb
- 10 minutes and no fuel correction for the descent
- Planned flight time (takeoff to landing) is 2 hrs. 37 minutes
- Reserve fuel 30% of the Trip Fuel
- Power setting is 23 inHg (or full throttle), 2300 RPM, 20°C lean
- FL 50 and the OAT is -5°C the Minimum Block Fuel Is:

- A) 250 lbs
- B) 208 lbs
- C) 270 lbs
- D) 260 lbs

34- (Refer to figure P-29) For a flight of 1900 NM the following conditions apply:

Headwind component: 10 kts

Temperature: ISA -5°C

Trip Fuel available: 15000 kg

Landing Mass: 50000 kg

What is the minimum cruise level (pressure altitude) which may be planned?

- A) 17000 ft.
- B) 10000 ft.
- C) 14000 ft.
- D) 22000 ft.

35- A multi-engine piston airplane is on an IFR flight. The fuel plan gives a Trip Fuel of 65 US gallons. The alternate fuel, final reserve included, is 17 US gallons. Contingency fuel is 5% of the Trip Fuel. The usable fuel at departure is 93 US gallons. At a certain moment the fuel consumed according to the fuel gauges is 40 US gallons and the distance flown is half of the total distance. Assume that fuel consumption does not change. Which statement is right?

- A) At the destination there will still be 30 US gallons in the tanks.
- B) The remaining fuel is not sufficient to reach the destination with reserves intact.
- C) At departure the reserve fuel was 28 US gallons.
- D) At destination the required reserves remain intact.

36- A descent is planned from FL340 so as to arrive at FL100 at a distance 6 NM from a VORTAC. With a G/S of 280 kts and a rate of descent of 1200 ft/min. The distance from the VORTAC when descent is started is:

- A) 65 NM
- B) 99 NM
- C) 27 NM
- D) 93 NM

37- ATC require a descent from FL270 to FL160 to be level 6 NM before a VOR. If rate of descent is 800 feet per minute, mean ground speed is 256 kts, how far out from the VOR must descent be started?

- A) 59 NM
- B) 65 NM
- C) 144 NM
- D) 150 NM

38- During an IFR flight in a Beech Bonanza the fuel indicators show that the remaining amount of fuel is 100 lbs after 38 minutes. The total takeoff fuel at departure was 160 lbs. For the alternate fuel, 30 lbs is necessary. The planned fuel for taxi was 13 lbs. Final reserve fuel is estimated at 50 lbs. If the fuel flow remains the same, how many minutes can be flown to the destination with the remaining fuel?

- A) 11 minutes.
- B) 63 minutes.
- C) 44 minutes.
- D) 4 minutes.

39- An aircraft flight planning chart states that the time to reach FL190 at a given gross mass is 22 minutes with a still air distance of 66 NM. The ground distance travelled when the average headwind component is 35 kts will be:

- A) 53 NM
- B) 61 NM
- C) 79 NM
- D) 85 NM

40- How many feet you have to climb to reach FL075?

Given:

Departure aerodrome elevation: 1500 ft

QNH: 1023 hPa

Temperature: ISA

(Assume 1 hPa is 30 ft)

- A) 6300 ft.
- B) 6000 ft.
- C) 6600 ft.
- D) 7800 ft.

41- An aircraft takes 14 minutes to climb to FL290 covering 71 NAM, what is the ground distance covered in a 30 kts headwind?

- A) 71 NGM
- B) 57 NGM
- C) 78 NGM
- D) 64 NGM

42- A sector distance is 450 NM long. The TAS is 460 kts. The wind component is 40 kts tailwind. What is the still air distance?

- A) 414 Nautical Air Miles (NAM).
- B) 499 Nautical Air Miles (NAM).
- C) 406 Nautical Air Miles (NAM).
- D) 511 Nautical Air Miles (NAM).

43- An aircraft is in cruising flight at FL095 and TAS 155 kts. The pilot intends to descend at 500 (ft/min) to arrive overhead the Payam VOR at 2000 ft (QNH 1030 hPa). The TAS remains constant in the descent, wind is negligible, temperature standard. At which distance from Payam VOR should the pilot commence the descent? (1 hPa = 27 ft)

- A) 41 NM
- B) 48 NM
- C) 38 NM
- D) 45 NM

44- A VFR flight in Piper SENECA III. At a fuel check you have 60 US gallons (USG) of usable fuel remaining. Alternate fuel required is 12 USG. The flight time remaining is 1 hr:35 min. What is the highest consumption rate acceptable?

- A) 33.0 USG/hr.
- B) 37.9 USG/hr.
- C) 30.3 USG/hr.
- D) 21.3 USG/hr.

45- Given CAS of 130 kts, OAT 0° C at 10000 ft, trip distance of 240 NM, track 275° (T) and W/V is 030°/30 kts. What is your true heading and time Enroute?

- A) 287° and 103 minutes.
- B) 287° and 95 minutes.
- C) 285° and 95 minutes.
- D) 285° and 88 minutes.

46- You are flying on constant compass heading of 252° Variation is 22°E, deviation is 3°W and your INS is showing a drift of 9° to the right. True track is?

- A) 242°
- B) 262°
- C) 280°
- D) 224°

47- After flying for 16 min at 100 kts TAS with a 20 kts tailwind component, you have to return to the airfield of departure. You will arrive after:

- A) 20 min.
- B) 24 min.
- C) 10 min 40 sec.
- D) 16 min.

48- An airplane flies at an airspeed of 380 kts, It flies from A to B and back to A. Distance AB is 480 NM. When going from A to B, it experiences a headwind component at 60 kts. The wind remains constant. The duration of the flight will be:

- A) 3 hrs. 00 min
- B) 2 hrs. 35 min
- C) 2 hrs. 10 min
- D) 2 hrs. 32 min

49- Flight planning chart for an airplane states, that the time to reach the cruising level at a given gross mass is 36 minutes and the distance travelled is 157 NM (zero wind). What will be the distance travelled with an average tailwind component of 60 kts?

- A) 193 NM
- B) 128 NM
- C) 157 NM
- D) 228 NM

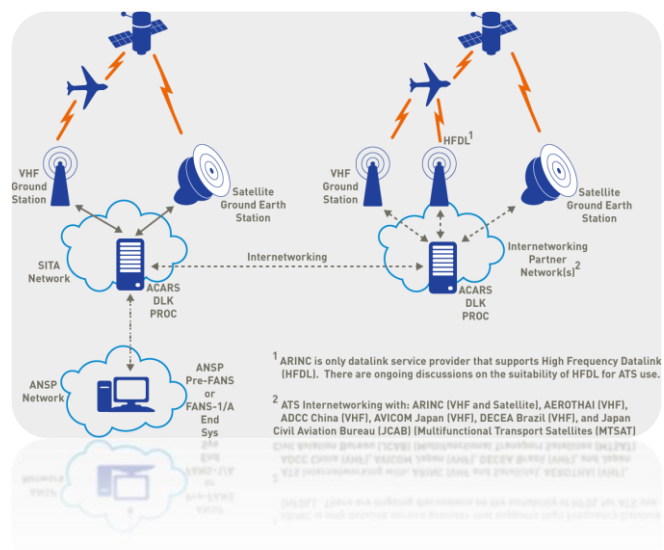
50- In the cruise at FL155 at 260 kts TAS, the pilot plans for a 500 (ft/min) descent in order to fly overhead Tehran VOR at 2000 feet (QNH 1030). TAS will remain constant during descent, wind is negligible, and temperature is standard. The pilot must start the descent at a distance from Tehran VOR:

- A) 140 NM
- B) 120 NM
- C) 110 NM
- D) 130 NM

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	C	16	D	31	A	46	C
2	A	17	A	32	B	47	B
3	A	18	A	33	D	48	B
4	C	19	A	34	A	49	A
5	D	20	C	35	B	50	B
6	D	21	D	36	B		
7	C	22	B	37	B		
8	A	23	C	38	A		
9	B	24	B	39	A		
10	D	25	A	40	A		
11	A	26	D	41	D		
12	A	27	C	42	A		
13	B	28	B	43	A		
14	B	29	B	44	C		
15	D	30	A	45	D		

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General Navigation



1- What is your density altitude if your altimeter indicates 20,000 feet (QNE set) and the outside air temperature is -27°C?

- A) 19,700 feet
- B) 19,000 feet
- C) 20,500 feet
- D) 21,000 feet

2- Determine the approximate CAS you should use to obtain TAS at 180 knots, with 8000 ft pressure altitude, and + 4°C outside air temperature:

- A) 152 knots
- B) 158 knots
- C) 162 knots
- D) 164 knots

3- What calibrated air speed is required to obtain TAS at 170 knots, at 11500 ft pressure altitude and temperature of -8°C?

- A) 143 knots
- B) 151 knots
- C) 148 knots
- D) 150 knots

4- Given :

Indicated altitude 7000 ft

OAT +20 °C

P.A 7000 ft

Based on these conditions what is the true altitude?

- A) 7,475ft
- B) 7,275ft
- C) 6,775ft
- D) 6,550ft

5- Given:

True course 095°

True heading 075°

True airspeed 90 kts

Groundspeed 77 kts

Determine the wind direction and speed

- A) 020° and 32 kts
- B) 030° and 38 kts
- C) 200° and 32 kts
- D) 330° and 31 kts

6- 131 US Gallon islitters

- A) 485
- B) 458
- C) 495
- D) 480

7- How long does it take if you want to travel 520 NM at 184 kts ground speed?

- A) 02:50 min
- B) 02:46 min
- C) 02:43 min
- D) 02:54 min

8- What would be the density altitude with pressure altitude of 20,000 ft and OAT of - 40°C ?

- A) 18,000 ft
- B) 20,000 ft
- C) 21,000 ft
- D) 19,000 ft

9- Find TH & G/S, if:

TC: 222°
TAS: 198 kts
W/V: 154°/38 kts

- A) TH:212°, G/S:188 kts
- B) TH:212°, G/S:181 kts
- C) TH:184°, G/S:212 kts
- D) TH:181°, G/S:212 kts

10- With the parameters of pressure altitude 16,000 ft calibrated airspeed 290 kts and indicated air temperature 20°C what would be the true airspeed?

- A) 367 kts
- B) 360 kts
- C) 377 kts
- D) 385 kts

11- Runway 30 is being used for landing. Which surface wind would exceed the airplane's crosswind capability of 0.2 Vso, if Vso is 60 knots?

- A) 260° at 10 knots
- B) 275° at 25 knots
- C) 315° at 35 knots
- D) 320° at 40 knots

12- If the reported surface wind is 010° at 18 knots what is the crosswind component for RWY08 during landing?

- A) 7 knots
- B) 15 knots
- C) 17 knots
- D) 21 knots

13- The surface wind is 180° at 25 knots. What is the crosswind component for RWY13 during landing?

- A) 25 knots
- B) 22 knots
- C) 21 knots
- D) 19 knots

14- TAS: 95 kts, G/S:87 kts, TC:105°, TH:85°, Find wind direction and velocity

- A) 020°, 32 kts
- B) 032°, 20 kts
- C) 038°, 20 kts
- D) 020°, 39 kts

15- Given:

True course: 015°
True heading: 025°
True airspeed: 105 kts
Ground speed: 125 kts

Determine the wind direction and speed.

- A) 020° and 32 knots.
- B) 300° and 38 knots.
- C) 200° and 32 knots.
- D) 155° and 28 knots.

16- Given:

P.A: 6,000 ft
OAT: 30°C

Find the Density Altitude:

- A) 9,000 ft
- B) 8,000ft
- C) 6,000 ft
- D) 4,000 ft

17- Given:

P.A: 10,000 ft

OAT: -13 °C

Calibrated Altitude: 12,000 ft

Find the True Altitude.

- A) 14,000 ft
- B) 11,600 ft
- C) 10,000 ft
- D) 13,000 ft

18- Given:

P.A: 10,000 ft

OAT: -20 °C

Calibrated Altitude: 12,000 ft

Altitude of ground station: 5,400 ft

Find True Altitude:

- A) 9,000 ft
- B) 10,000 ft
- C) 11,300 ft
- D) 12,500 ft

19- Given:

Calibrated Air Speed: 220 kts

P.A: 20,000 ft

Indicated Air Temperature: -30°C

C_T= 0.8

Find True Air Speed (Kts).

- A) 350
- B) 400
- C) 100
- D) 288

20- Given:

Calibrated Air Speed: 650 kts

P.A: 24,000 ft

Indicated Air Temperature: -20°C

Find True Air Speed (Kts).

- A) 650
- B) 900
- C) 850
- D) 755

21- Given:

P.A: 12,500 ft

Indicated Air Temperature: -20°C

True Air Speed 288 kts

Find Calibrated Air Speed (Kts).

- A) 350
- B) 400
- C) 250
- D) 195

22- Given:

P.A: 5,000 ft

Ambient Air Temperature: -20°C

Find Density Altitude.

- A) 1,000 ft
- B) 2,000 ft
- C) 3,000 ft
- D) 3,500 ft

23- Given:

P.A: 3,000 ft

Static Air Temperature: 20°C

Calibrated Altitude: 4,000 ft

Altitude of ground station: 1,060 ft

Find True Altitude.

- A) 4,160 ft
- B) 5,110 ft
- C) 3,500 ft
- D) 2,830 ft

24- Given:

Calibrated Air Speed: 190 kts

P.A: 8,500 ft

Indicated Air Temperature: 5°C

Find True Air Speed.

- A) 216
- B) 100
- C) 316
- D) 400

25- Given:

Calibrated Air Speed: 390 kts
P.A: 30,000 ft
Indicated Air Temperature: 15°C

Find True Air Speed.

- A) 530
- B) 605
- C) 700
- D) 470

26- Given:

True Air Speed: 350 kts
Indicated Air Temperature: -20°C
P.A: 15,000 ft

Find Calibrated Air Speed.

- A) 196
- B) 296
- C) 396
- D) 496

27- Given:

P.A: 21,000 ft
True Air Temperature: -30°C
Find Density Altitude.

- A) 19,000 ft
- B) 20,500 ft
- C) 25,000 ft
- D) 30,500 ft

28- Given:

Calibrated Air Speed: 300 kts
P.A: 20,000 ft
Indicated Air Temperature: 0°C
Recovery Coefficient: 0.8

Find True Air Temperature.

- A) +17.6 °C
- B) -30 °C
- C) -17.6 °C
- D) +30 °C

29- Given:

P.A: 5,000 ft

Calibrated Air Speed: 395 kts

Find Mach number.

- A) 0.65
- B) 0.50
- C) 0.85
- D) 0.76

30- Given:

Indicated Mach number: 1.16

Indicated Air Temperature: 10°C

Find True Air Speed:

- A) 590
- B) 790
- C) 490
- D) 675

31- Given:

Calibrated Air Speed: 230 kts

P.A: 13,000 ft

True Air Temperature: -20°C

Find True Air Speed.

- A) 100
- B) 400
- C) 372
- D) 272

32- Given:

P.A: 12,500 ft

OAT: -20°C

TAS: 288 kts

Find CAS (kts).

- A) 151
- B) 400
- C) 245
- D) 351

33- Given:

TAS: 172 kts

IAT: 10 °C

Find OAT.

- A) +16 °C
- B) +6 °C
- C) -6 °C
- D) -16 °C

34- Given:

P.A: 6,000 ft

IAT: 10°C

CAS: 140 kts

Find OAT.

- A) +7 °C
- B) -7 °C
- C) +21 °C
- D) -21 °C

35- Given:

P.A: 27,000 ft

CAS: 415 kts

Find Mach number.

- A) 1.90
- B) 1.00
- C) 0.16
- D) 0.40

36- Given:

Indicated Mach number: 1.0

Indicated Air Temperature: 60°C

Find True Air Speed.

- A) 550
- B) 450
- C) 650
- D) 750

37- Given:

P.A: 14,000 ft

CAS: 450 kts

OAT: -5 °C

Find TAS.

- A) 400
- B) 464
- C) 547
- D) 666

38- Given:

P.A: 21,000 ft

CAS: 270 kts

OAT: -15 °C

Find TAS.

- A) 585
- B) 450
- C) 375
- D) 650

39- Given:

P.A: 12,000 ft

True Air Temperature: 0°C

Find Density Altitude.

- A) 13,000 ft
- B) 14,000 ft
- C) 11,000 ft
- D) 12,000 ft

40- Given:

P.A: 16,000 ft

True Air Temperature: -10 °C

Calibrated Altitude: 15,000 ft

Find True Altitude.

- A) 16,400 ft
- B) 15,400 ft
- C) 14,000 ft
- D) 13,000 ft

41- Given:

P.A: 4,000 ft

Static Air Temperature: 10°C

Calibrated Altitude: 4,300 ft

Altitude of ground station: 1,000 ft

Find True Altitude.

- A) 2,350 ft
- B) 3,350 ft
- C) 4,350 ft
- D) 5,350 ft

42- Given:

True Air Speed: 230 kts

Indicated Air Temperature: 15°C

P.A: 10,000 ft

Find Calibrated Air Speed.

- A) 184
- B) 214
- C) 164
- D) 194

43- Given:

Calibrated Air Speed: 410 kts

P.A: 22,000 ft

Indicated Air Temperature: 20 °C

C_T: 1.0

Find True Air Speed.

- A) 764
- B) 462
- C) 664
- D) 561

44- Given:

Calibrated Air Speed: 180 kts

Indicated Air Temperature: -10 °C

P.A: 5,000 ft

Find True Air Speed.

- A) 176
- B) 296
- C) 186
- D) 396

45- Given:

P.A: 5,000 ft

Ram air Temperature: 27°C

Find Density Altitude.

- A) 6,500 ft
- B) 7,500 ft
- C) 8,500 ft
- D) 9,500 ft

46- Given:

P.A: 12,500 ft

Actual Air Temperature: -2°C

Calibrated Altitude: 12,000 ft

Altitude of ground station unknown

Find True Altitude.

- A) 12,400 ft
- B) 13,400 ft
- C) 11,400 ft
- D) 14,400 ft

47- Given:

P.A: 3,000 ft

Indicated Air Temperature: 30°C

Calibrated Air Speed: 125 MPH

Find True Air Speed.

- A) 135 MPH
- B) 135 kts
- C) 235 MPH
- D) 235 kts

48- Given:

P.A: 40,000 ft

Indicated Air Temperature: -10°C

Calibrated Air Speed: 350 kts

Find True Air Speed:

- A) 624
- B) 525
- C) 425
- D) 725

49- Given:

P.A: 9,000 ft

Indicated Air Temperature: -20°C

True Air Speed: 315 kts

Find Calibrated Air Speed.

- A) 196
- B) 296
- C) 396
- D) 496

50- Given:

P.A: 0 ft

Ram air Temperature: 15 °C

Find Density Altitude.

- A) 1000 ft
- B) 0 ft
- C) 2000 ft
- D) 500 ft

51- Given:

P.A: 11,000 ft

Ambient Air Temperature: -10 °C

Calibrated Altitude: 12,500 ft

Altitude of ground station: 2,000 ft

Find True Altitude.

- A) 11,390 ft
- B) 13,500 ft
- C) 12,390 ft
- D) 14,390 ft

52- Given:

P.A: 35,000 ft

Indicated Air Temperature: -10 °C

Calibrated Air Speed: 300 kts

Find True Air Speed (Kts).

- A) 586
- B) 650
- C) 515
- D) 890

53- Given:

P.A: 1,000 ft

Indicated Air Temperature: -25 °C

True Air Speed 110 Kts

Find Calibrated Air Speed.

- A) 135 Mph
- B) 136 kts
- C) 126 Mph
- D) None of above

54- 210 Knots equals to Mph.

- A) 218
- B) 418
- C) 242
- D) 442

55- Fuel used during flight is 85 US gallons in 2 hours and 08 minutes. Determine the fuel consumption?

- A) 40 GPH
- B) 52 GPH
- C) 40 PPH
- D) 52 GPH

56- If the maximum allowable Tailwind component for a given airplane is 9 knots, is it possible for taking off runway 30 at which surface wind is reported 050°/ 15 knots?

- A) Yes
- B) No

57- 80 US gallons equals to liters.

- A) 333
- B) 33.3
- C) 303
- D) 30.3

58- Given:

Pressure Altitude 10,000 ft

Outside Air Temperature -20 °C

Calibrated Airspeed 115 Kts

Find True Air Speed?

- A) 130 Kts
- B) 152 Kts
- C) 130 Mph
- D) 152 Mph

59- How long does it take to fly 720 NM at 120 knots ground speed?

- A) 700 Minutes
- B) 6 hours
- C) 600 Minutes
- D) 5.5 hours

60- Given:

First bearing: 100 ° at 10:25 UTC

Second bearing: 092° at 10:27 UTC

Ground Speed: 100 knots.

Find time & distance to Station.

- A) 15 min – 25 NM
- B) 10 min – 15 NM
- C) 20 min – 30 NM
- D) 5 min – 8 NM

61- Given:

Pressure Altitude: 22,000 ft

Outside Air Temperature: -15°C

Calibrated Altitude: 21,600 ft

Find True Altitude.

- A) 21,800 ft
- B) 20,800 ft
- C) 20,200 ft
- D) 22,800 ft

62- Aircraft has flown 300 NM in 02 hours and 30 minutes, what is the ground speed?

- A) 120 Kts
- B) 105 Mph
- C) 120 Mph
- D) 105 Kts

63- The mass of 48 US gallons Fuel is: (S.G = 0.72)

- A) 345 Kg
- B) 288 lbs
- C) 345 lbs
- D) 288 Kg

64- Given:

True course: 040 °

True air speed: 120 kts

Wind: 160° / 20 kts

Find True Heading and Ground Speed?

- A) TH= 030° – G/S=100 Kts
- B) TH= 053° – G/S=110 Kts
- C) TH= 048° – G/S= 130 Kts
- D) TH= 034° – G/S= 105 Kts

65- If an aircraft is required to fly at M 0.80 and maintain FL290, what CAS should be kept?

- A) 280 Kts
- B) 290 Kts
- C) 295 Kts
- D) 310 Kts

66- Find the mass of 15 imperial gallons Oil?

- A) 115 lbs
- B) 135 lbs
- C) 1150 lbs
- D) 1350 lbs

67- If True air speed is 135 knots and required wind correction angle is 17° to the right. What is the effective true air speed?

- A) 129 Kts
- B) 138 Kts
- C) 120 Kts
- D) 119 Kts

68- Given:

Pressure Altitude 30,000 ft

Outside Air Temperature -35 °C

Find Density Altitude?

- A) 30,000 ft
- B) 29,500 ft
- C) 28,500 ft
- D) 31,000 ft

69- Given:

Climb/Mile: 350 (Ft/NM)

Ground Speed: 85 Knots

Find Climb/min.

- A) 495 Ft/min
- B) 465 Ft/min
- C) 450 Ft/min
- D) 515 Ft/min

70- Given:

Mach Number: 0.70

Indicated Air Temp.: -20°C

C_T: 0.80

Find the Temperature Rise.

- A) -18.4 °C
- B) +30 °C
- C) +18.4 °C
- D) -24 °C

71- Given:

Density Altitude 26,000 ft

Outside air temperature -36 °C

Find the Pressure altitude.

- A) 26,000 ft
- B) 25,000 ft
- C) 27,000 ft
- D) 27,500 ft

72- Surface wind is reported 310° at 25 knots and RWY 27 is cleared to land. Find the crosswind component.

- A) 9 Kts
- B) 11 Kts
- C) 21 Kts
- D) 16 Kts

73- If outside Air Temperature is 10 °C. Find the Speed of Sound.

- A) 633 Mph
- B) 653 Kts
- C) 633 Kts
- D) 653 Mph

74- The mass of 25 imperial gallons fuel is (S.G=0.72):

- A) 18 lbs
- B) 205 lbs
- C) 180 lbs
- D) 20.5 lbs

75- Given:

Pressure Altitude: 36,000 ft

Outside Air Temperature: - 40 °C

Find the density altitude.

- A) 36,200 ft
- B) 35,300 ft
- C) 35,800 ft
- D) 37,300 ft

76- 36,000 ft is approximately equal to meter.

- A) 11,000
- B) 10,500
- C) 10,000
- D) 11,500

77- If an airplane flies at 154 knots and experiences 25° right wind correction angle. Find the Effective True Air Speed?

- A) 136 Kts
- B) 140 Kts
- C) 122 Kts
- D) 119 Kts

78- Given:

Pressure Altitude: 39,000 ft

Indicated Air Temperature: -20 °C

Calibrated Air Speed: 230 kts

C_T: 1.0

Find True Air Speed.

- A) 423 Kts
- B) 431 Kts
- C) 454 Kts
- D) 442 Kts

79- How long does it take to fly 48 NM at 145 knots ground speed?

- A) 15 min
- B) 10 min
- C) 20 min
- D) 25 min

80- If the maximum allowable crosswind component for a given aeroplane is 20 Kts and the reported surface wind is $210^{\circ}/30$ Kts . Is it possible to land on RWY 16L?

- A) Yes
- B) No

81- Given:

Pressure Altitude: 9,000 ft

Outside Air Temperature: -20°C

Calibrated Air Speed: 135 Kts

Find the True Air Speed.

- A) 140 Kts
- B) 150 Kts
- C) 160 Kts
- D) 130 Kts

82- If Outside Air Temperature is 0°C , calculate the Speed of Sound.

- A) 642 Mph
- B) 614 Kts
- C) 614 Mph
- D) 642 Kts

83- If fuel used during flight is 53 US gallons and elapsed flight time 03 hours and 20 minutes, calculate the fuel consumption.

- A) 90 PPH
- B) 19 GPH
- C) 95.5 PPH
- D) 12 GPH

84- First Bearing is 340° at time 16:25 UTC

Second Bearing is 331° at time 16:28 UTC

Ground Speed: 75 Knots

Find time and distance to station?

- A) 15 min – 20 NM
- B) 20 min – 25 NM
- C) 25 min – 30 NM
- D) 30 min – 35 NM

85- Given:

Pressure Altitude **34,000 ft**

Calibrated Air Speed **300 Kts**

Find the Mach Number.

- A) 0.80
- B) 0.96
- C) 0.90
- D) 0.86

86- An aircraft flies 154 NM in 01 hour and 20 minutes. Calculate the Ground Speed.

- A) 105 Kts
- B) 115 Kts
- C) 120 Kts
- D) 125 Kts

87- Given:

Climb/mile: **380 ft/NM**

Ground Speed: **120 Kts**

Find the Climb/min.

- A) 730 ft/min
- B) 760 ft/min
- C) 780 ft/min
- D) 740 ft/min

88- Given:

Mach Number: **0.85**

Indicated Air Temperature: +10 °C

C_T: **0.80**

Find the True Air Temperature (OAT).

- A) +27 °C
- B) -20 °C
- C) -37 °C
- D) +20 °C

89- If surface wind is reported : 290° / 20 knots and RWY 18 is cleared to land. Calculate the Head (or Tail) wind component.

- A) Tailwind 11 knots
- B) Headwind 7 knots
- C) Tailwind 7 knots
- D) Headwind 11 knots

90- Given:

Pressure Altitude: 24,000 ft

Outside Air Temperature: -20 °C

Calibrated Altitude : 23,200 ft

Find True Altitude.

- A) 24,400 ft
- B) 23,800 ft
- C) 25,200 ft
- D) 22,600 ft

91- 210 Km is equal to Statute miles.

- A) 145
- B) 125
- C) 130
- D) 140

92- If Density Altitude is 31,000 ft and Outside Air Temperature is -46 °C , find the pressure altitude.

- A) 30,000 ft
- B) 29,500 ft
- C) 32,500 ft
- D) 31,000 ft

93- Given:

True Course: 230°

True Air Speed: 105 Kts

Wind: 260°/ 30 kts

Find the True Heading and Ground Speed.

- A) TH= 222° - G/S= 131 Kts
- B) TH= 238° - G/S= 79 Kts
- C) TH= 243° - G/S= 89 Kts
- D) TH=217° - G/S= 131 Kts

94- Given:

CAS: 230 kts

P.A: FL120

OAT: -10 °C

What is the true air speed?

- A) 266 kts
- B) 273 kts
- C) 280 kts
- D) 287 kts

95- You are flying at FL080 and air temperature is ISA +15. What CAS is required to make TAS 240 kts?

- A) 208 kts
- B) 214 kts
- C) 220 kts
- D) 226 kts

96- Given:

Pressure altitude: 9,000 ft

OAT: -32 °C

CAS: 200 kts

What is the TAS?

- A) 215 kts
- B) 200 kts
- C) 205 kts
- D) 222 kts

97- Given:

Magnetic track: 210°

Magnetic HDG: 215°

Variation: 15°E

TAS: 360 kts

Aircraft flies 64 NM in 12 min.

Calculate the true W/V.

- A) 265°/50 kts
- B) 195°/50 kts
- C) 235°/50 kts
- D) 300°/30 kts

98- Given

True course: 092°

TAS: 250 kts

W/V: 204° (T)/38 kts

Calculate the true heading and ground speed.

- A) 100°, 262 kts
- B) 120°, 236 kts
- C) 100°, 236 kts
- D) 120°, 264 kts

99- Given:

True HDG: 145°
TAS: 240 kts
Track (°T): 150°
Ground Speed: 210 kts

Calculate the W/V.

- A) 360°/35 kts
- B) 180°/35 kts
- C) 295°/35 kts
- D) 115°/35 kts

100- Given:

True HDG: 074°
TAS: 230 kts
Track: 066° (T)
Ground Speed: 242 kts

Calculate the W/V.

- A) 180°/25 kts
- B) 180°/35 kts
- C) 185°/45 kts
- D) 185°/40 kts

101- Given:

Fuel flow: 8,400 Kg/hr
Specific Gravity: 0.80
Mach number: 0.76
OAT: -36°C

What is the specific fuel consumption?

- A) 14.7 kg/NM air distance.
- B) 18.4 kg/NM air distance.
- C) 19.5 kg/NM air distance.
- D) 15.6 kg/NM air distance.

102- Given:

CAS: 140 kts
P.A: FL80
OAT: +20 °C

What is the TAS?

- A) 156 kts
- B) 160 kts
- C) 164 kts
- D) 168 kts

103- Given:

TAS: 188 kts
P.A: FL085
OAT: -10° C

What is the CAS?

- A) 145 kts
- B) 168 kts
- C) 195 kts
- D) 188 kts

104- The equivalent of 70 (m/sec) is approximately:

- A) 145 kts
- B) 136 kts
- C) 210 kts
- D) 35 kts

105- Given:

Fuel flow: 6.5 t/hr
Specific gravity: 0.80
Mach number: 0.68
OAT: -30°C
Headwind component: 25 kts

What is the specific fuel consumption?

- A) 16.7 kg/NM air distance.
- B) 13.4 kg/NM ground distance.
- C) 13.4 kg/NM air distance.
- D) 16.7 kg/NM ground distance.

106- Given:

TAS: 140 kts
P.A: FL080
OAT: 20 °C

What is the CAS?

- A) 120 kts
- B) 129 kts
- C) 151 kts
- D) 163 kts

107- Given:

CAS: 120 kts
P.A: FL080
OAT: +20°C

What is the TAS?

- A) 132 kts
- B) 102kts
- C) 120 kts
- D) 141 kts

108- Given:

True HDG: 133°
TAS: 225 kts
Track: 144° (T)
Ground Speed 206 kts

Calculate the W/V.

- A) 060/40 kts
- B) 075/45 kts
- C) 060/45 kts
- D) 075/55 kts

109- Given:

True course: 046°
TAS: 295 kts
W/V: 247° (T)/15 kts

Calculate the true heading and ground speed.

- A) 045°,309 kts
- B) 186°,355 kts
- C) 077°,420 kts
- D) 065°,370 kts

110- Given:

Mach No.: 0.80
OAT: -50° C
P.A: FL330
Ground Speed: 490 kts
VAR: 20° w
Magnetic heading: 140°
Drift: 11° Right

Calculate the true W/V.

- A) 200° /95 kts.
- B) 025° /47 kts.
- C) 020°/95 kts.
- D) 025°/45 kts.

111- Given:

True course: 125°
TAS: 420 kts
W/V: 240° (T)/50 kts

Calculate the true heading and ground speed.

- A) 045°,400 kts
- B) 131°,439 kts
- C) 100°,420 kts
- D) 065°,370 kts

112- Given:

TAS: 485 kts
OAT: ISA+10°C
P.A: FL410

Calculate the Mach number.

- A) 0.85
- B) 0.90
- C) 0.825
- D) 0.87

113- Given:

TAS: 487 kts
P.A: FL330
Temperature: ISA + 15° C

Calculate the Mach number.

- A) 0.81
- B) 0.87
- C) 0.76
- D) 0.78

114- If the headwind component is 50 kts, The FL330, temperature ISA -7 °C and the ground speed is 495 kts, what is the Mach number?

- A) 1.00
- B) 0.79
- C) 0.95
- D) 0.75

115- Given:

Fuel flow: 42 US Gal/hr
Specific gravity: 0.72
TAS: 210 kts

What is the specific fuel consumption?

- A) 1.052 kg/NM air distance.
- B) 0.757 kg/NM air distance.
- C) 0.144kg/NM air distance.
- D) 0. 545 kg/NM air distance.

116- Given:

Fuel flow: 28 Imp Gal/hr

Specific gravity: 0.72

TAS: 154 mph

What is the specific fuel consumption?

- A) 0.60 kg/NM air distance.
- B) 0.68 kg/NM air distance.
- C) 1.46 kg/NM air distance.
- D) 0.50 kg/NM air distance.

117- Given:

CAS: 140 kts

P.A: FL130

TAS: 174 kts

What is the OAT?

- A) -11°C
- B) +6 °C
- C) 0 °C
- D) -6°C

118- If the TAS exceeds the CAS by 20% at FL100 the OAT should be:

- A) -5 °C.
- B) +5 °C.
- C) +15 °C.
- D) Is not defined.

119- Given:

CAS: 130 kts

P.A: 1.000 ft

TAS: 127 kts

What is the OAT?

- A) +20°C
- B) +10 °C
- C) 0°C
- D) -8 °C

120- Given:

TAS: 485 kts
True HDG: 226°
W/V: 110° (T) /95 kts

Calculate the drift angle and GS.

- A) 12°L - 521 kts.
- B) 9°R - 533 kts.
- C) 9°L - 533 kts.
- D) 12°R - 521 kts.

121- Given:

TAS: 140 kts
HDG: 005 ° (T)
W/V: 265°/25 kts

Calculate the drift and GS.

- A) 11°R - 120 kts.
- B) 9°L - 140 kts.
- C) 11°L -142 kts.
- D) 10°R-146 kts.

122- Given:

TAS: 472 kts
True HDG: 005°
W/V: 110° (T)/50 kts

Calculate the drift angle and G/S.

- A) 6°L - 487 kts.
- B) 7°R - 491 kts.
- C) 7°L - 497 kts.
- D) 7°R - 487 kts.

123- Given:

TAS: 235 kts
HDG: 076°(T)
W/V: 040°/40 kts

Calculate the drift angle and ground speed.

- A) 5°R-217 kts.
- B) 7°L-269 kts.
- C) 5°L-255 kts
- D) 6°R-204 kts.

124- Given:

TAS: 190 kts
True HDG: 085°
W/V: 110° (T) /50 kts

Calculate the wind correction angle and the ground speed.

- A) 7°R- 146 kts.
- B) 7°L- 156 kts.
- C) 4°R- 168 kts.
- D) 4°L- 145 kts.

125- Given

True course: 327°
TAS: 520 kts
W/V: 250° (T)/90 kts

Calculate the true heading and ground speed.

- A) 317°,492 kts
- B) 186°,444 kts
- C) 123°,420 kts
- D) 325°,370 kts

126- Given:

TAS: 270 kts
True HDG: 145°
Actual wind: 205° (T)/30 kts

Calculate the drift angle and ground speed.

- A) 8°L - 266 kts.
- B) 6°R - 251 kts.
- C) 6°L - 256 kts.
- D) 6°R - 259 kts.

127- Given:

True course: 166°
TAS: 290 kts
W/V: 120° (T)/20 kts

Calculate the true heading and ground speed.

- A) 163°,276 kts
- B) 186°,320 kts
- C) 157°,300 kts
- D) 155°,276 kts

128- Given:

TAS: 205 kts
HDG: 180 °(T)
W/V: 240°/25 kts

Calculate the drift and ground speed.

- A) 7°R - 192 kts.
- B) 6°L - 194 kts.
- C) 3°L - 184 kts.
- D) 4°R -195 kts.

129- Given:

TAS: 120 kts
Actual HDG: 150°
Wind: 245°/12 kts

What is the wind correction angle?

- A) 6° to the right.
- B) 6° to the left.
- C) 12° to the right.
- D) 12° to the left

130- Given:

True Heading: 180°
TAS: 500 kts
W/V: 225°/100 kts

Calculate the ground speed.

- A) 455 kts
- B) 600 kts
- C) 535 kts
- D) 435 kts

131- Given:

TAS: 470 kts
True HDG: 317°
W/V: 045° (T)/45 kts

Calculate the drift angle and G/S.

- A) 3°R - 470 kts.
- B) 6°L - 470 kts.
- C) 6°L - 480 kts.
- D) 6°R - 480 kts.

132- Given:

TAS: 132 kts
True HDG: 257°
W/V: 095° (T)/35 kts

Calculate the drift angle and ground speed.

- A) 7°R-176 kts.
- B) 4°R-166 kts.
- C) 4°L - 166 kts.
- D) 7°L -176 kts.

133- Given:

TAS: 150 kts
Actual HDG: 270°
Wind: 245°/12 kts

What is the wind correction angle?

- A) 6° to the right.
- B) 6° to the left.
- C) 2° to the right.
- D) 2° to the left.

134- Given:

TAS: 465 kts
HDG: 124° (T)
W/V: 170°/80 Kts

Calculate the drift and ground speed.

- A) 8°L - 415 kts.
- B) 3°L - 415 kts.
- C) 3°R - 400 kts.
- D) 8°R - 400 kts.

135- Given:

Runway direction: 230° (T)
Surface W/V: 280° (T)/40 kts

Calculate the effective crosswind component.

- A) 21 kts
- B) 37 kts
- C) 31 kts
- D) 25 kts

136- Given:

TAS: 90 kts
HDG: 355° (T)
W/V: 120°/20 kts

Calculate the track and ground speed.

- A) 006° (T) - 95 kts.
- B) 346° (T) - 103 kts.
- C) 358° (T) - 101 kts.
- D) 359° (T) - 102 kts.

137- Given:

TAS: 125 kts
True HDG: 355°
W/V: 320° (T)/30 kts

Calculate the true track and ground speed.

- A) 005° (T) - 92 kts.
- B) 348° (T) - 92 kts.
- C) 348° (T) - 102 kts,
- D) 005° (T) - 102 kts.

138- An aircraft is on final approach to Runway 32R (322°) the wind velocity reported by the tower is 350°/20 kts. TAS on approach is 95 kts. In order to maintain the center line, the aircraft's heading should be:

- A) 322° (M)
- B) 328° (M)
- C) 316° (M)
- D) 326° (M)

139- Given

TAS: 227 kts
Track: 316° (T)
W/V: 205°/15 Kts

Calculate the HDG and ground speed.

- A) 313° (T) - 222 kts.
- B) 311° (T) - 221 kts.
- C) 312° (T) - 232 kts.
- D) 310° (T) - 242 kts.

140- Given:

Maximum allowable crosswind component: 20 kts

Runway: 06

RWY QDM: 063° (M)

Wind direction: 100° (M)

Calculate the maximum allowable wind speed?

- A) 26 kts
- B) 38 kts
- C) 33 kts
- D) 23 kts

141- Given:

TAS: 155 kts

Track: 305° (T)

W/V: 160°/18 kts

Calculate the HDG and ground speed.

- A) 301° (T) - 169 kts.
- B) 309° (T) - 169 kts.
- C) 309° (T) - 141 kts.
- D) 311° (T) - 141 kts.

142- Given:

Actual HDG: 290°

TAS: 250 kts

Wind: 135°/75kts

What is the ground speed?

- A) 320 kts
- B) 300 kts
- C) 175 kts
- D) 200 kts

143- Given:

TAS: 440 Kts

HDG: 349° (T)

W/V: 040°/40 Kts

Calculate the drift and G/S.

- A) 4°L - 416 kts.
- B) 2°L - 426 kts.
- C) 6°R - 395 kts.
- D) 5°R - 385 kts.

144- Given:

TAS: 220 kts
True course: 212°
W/V: 160°/ 50 Kts

Calculate the ground speed.

- A) 186 kts
- B) 290 kts
- C) 246 kts
- D) 250 kts

145- Given:

Runway direction: 083° (M)
Surface W/V: 035°/ 35kts

Calculate the effective headwind component.

- A) 24 kts
- B) 18 kts
- C) 31 kts
- D) 34 kts

146- Given:

TAS: 270 kts
Track: 260° (T)
W/V: 275°/ 30 kts

Calculate the HDG and ground speed.

- A) 269° (T)- 231 kts.
- B) 262° (T)- 231 kts.
- C) 269° (T)- 241 kts.
- D) 262° (T)- 241 kts.

147- Given:

True heading: 265°
TAS: 290 kts
W/V: 210°/ 35 kts

What is the true track and ground speed?

- A) 261° and 305 kts
- B) 259° and 272 kts
- C) 260° and 315 kts
- D) 271° and 272 kts

148- Given:

Runway direction: 305° (M)

Surface W/V: 260° (M) / 30 kts

Calculate the crosswind component.

- A) 18 kts
- B) 29 kts
- C) 27 kts
- D) 21 kts

149- The reported surface wind from the tower is 240°/35 kts and runway 30 (300°). What is crosswind component?

- A) 30 kts
- B) 24 kts
- C) 35 kts
- D) 21 kts

150- Given:

TAS: 155 kts

HDG: 216° (T)

W/V: 090°/ 60 kts

Calculate the track and GS.

- A) 236° (T) - 175 kts.
- B) 230° (T) - 196 kts.
- C) 222° (T) - 181 kts.
- D) 220° (T) - 186 kts.

151- Given:

True heading: 090°

TAS: 200 kts

W/V: 220°/ 30kts

Calculate the ground speed.

- A) 180 kts
- B) 230 kts
- C) 220 kts
- D) 200 kts

152- For a landing on runway 23 (227° magnetiC) surface wind reported by the ATIS is 180°/30 kts. Variation is 13°E. Calculate the crosswind component.

- A) 19 kts
- B) 22 kts
- C) 26 kts
- D) 15 kts

153- An aircraft is following a true track of 048° at a constant TAS of 210 kts. The wind velocity is 350°/30 kts. The ground speed and drift angle are:

- A) 192 kts, 7° left
- B) 202 kts, 3° right
- C) 192 kts, 7° right
- D) 225 kts, 3° left

154- Given:

TAS: 230 kts
HDG (T): 250°
W/V (T): 205°/ 10 kts

Calculate the drift and ground speed.

- A) 1°L-214 kts.
- B) 1°R-201 kts.
- C) 2°R- 223 kts.
- D) 2°L - 224 kts

155- Given:

Maximum allowable tailwind

component for landing: 10 kts

Planned runway: 05 (047°magnetiC)

The direction of the surface

wind reported by ATIS: 210°

Variation: 17°E

Calculate the maximum allowable wind speed that can be accepted without exceeding the tailwind limit.

- A) 15 kts
- B) 18 kts
- C) 20 kts
- D) 10 kts

156- The wind is 180°/25. An aircraft is heading 180° at a TAS of 198 knots. (All directions are true). What is its track and ground speed?

- A) 180° (T)/ 173 kts
- B) 179° (T)/ 220 kts
- C) 180° (T)/ 220 kts
- D) 179°(T)/ 223 kts

157- Given:

TAS: 198 kts
HDG: 180° (T)
W/V: 360° / 25 kts

Calculate the track and ground speed.

- A) 180° (T) - 223 kts.
- B) 179° (T) - 190 kts.
- C) 181° (T) - 180 kts.
- D) 182° (T) - 183 kts.

158- Given:

TAS: 370 kts
HDG: 181°
W/V: 095° / 35 kts

Calculate the true track and ground speed.

- A) 186°(T) - 370 kts.
- B) 176°(T) - 370 kts.
- C) 192°(T) - 370 kts.
- D) 196°(T) - 370 kts.

159- Given:

TAS: 485 kts
HDG: 168° (T)
W/V: 130° / 75 kts

Calculate the track and ground speed.

- A) 174° (T) - 428 kts.
- B) 170° (T) - 542 kts.
- C) 160° (T) - 418 kts.
- D) 196° (T) - 421 kts,

160- Given:

TAS: 140 kts
True HDG: 302°
W/V: 045° (T) / 45 kts

Calculate the wind correction angle and ground speed?

- A) 6°R - 143 kts.
- B) 16°R - 156 kts.
- C) 6°L - 146 kts.
- D) 16°L - 156 kts.

161- Given:

Actual HDG: 250°
TAS: 140 kts
Wind: 180° / 60 kts

Calculate ground speed.

- A) 170 kts
- B) 160 kts
- C) 132 kts
- D) 120 kts

162- Given:

P.A: FL270
OAT: -35 °C
Mach No.: 0.45
W/V: 270° / 85 kts
Track: 200° (T)

What is drift and ground speed?

- A) 10°L / 252 knots
- B) 10°R / 310 knots
- C) 17°L / 228 knots
- D) 17°R / 287 knots

163- Given:

Heading: 156° (T)
TAS: 320 kts
W/V: 090° / 35 Kts

What is your true track?

- A) 162°
- B) 142°
- C) 104°
- D) 222°

164- Given:

Course: 040° (T)
TAS: 120 kts
Wind speed: 30 kts

Maximum drift angle will be obtained for a wind direction of:

- A) 120
- B) 145
- C) 115
- D) 130

165- Given:

TAS: 225 kts
HDG (°T): 123°
W/V: 090°/60kts

Calculate the track (°T) and ground speed.

- A) 133° - 177 kts.
- B) 130° - 190 kts.
- C) 120° - 190 kts.
- D) 123° - 180 kts.

166- Heading: 305° (T)

TAS: 135 kts
W/V: 230°/40 kts

What is the ground speed?

- A) 130 kts
- B) 120 kts
- C) 145 kts
- D) 97 kts

167- Given:

TAS: 375 kts
True HDG: 124°
W/V: 130° (T)/55 kts

Calculate the true track and G/S.

- A) 123° (T) - 320 kts.
- B) 123° (T) - 300 kts.
- C) 128° (T) - 305 kts.
- D) 128° (T) - 310 kts.

168- Given:

TAS: 200 kts
Track: 110° (T)
W/V: 015°/40 kts

Calculate the HDG and ground speed.

- A) 097° (T) - 211 kts.
- B) 121° (T) - 207 kts.
- C) 121° (T) - 199 kts.
- D) 099° (T) - 199 kts.

169- Given:

TAS: 95 kts
HDG: 075° (T)
W/V: 310°/20 kts

Calculate the drift and ground speed.

- A) 9°R - 108 kts.
- B) 15°L - 104 kts.
- C) 9°L - 105 kts.
- D) 15°R - 104 kts.

170- Given:

TAS: 170 kts
HDG (°T): 100°
W/V: 350°/30 kts

Calculate the track (°T) and ground speed.

- A) 098° - 178 kts.
- B) 109° - 184 kts.
- C) 091° - 183 kts.
- D) 101° - 178 kts.

171- Given:

RWY direction: 210° (M)
Surface W/V: 230° (M)/30 kts

Calculate the crosswind component.

- A) 19 kts
- B) 10 kts
- C) 17 kts
- D) 21 kts

172- Given:

TAS: 200 kts
Track: 073° (T)
W/V: 210°/20 kts

Calculate the HDG and ground speed.

- A) 077° (T) - 214 kts.
- B) 087° (T) - 186 kts.
- C) 062° (T) - 213 kts.
- D) 067° (T) - 186 kts.

173- Given:

Required course: 045° (T)

W/V: 190°/30

Variation: 15°E

TAS: 120 knots

What is the magnetic heading and ground speed?

A) 052° (M) - 143 kts

B) 067° (M) - 113 kts

C) 038° (M) - 143 kts

D) 038° (M) - 113 kts

174- Given:

TAS: 132 kts

HDG: 053 °(T)

W/V: 205°/15 kts

Calculate the track (°T) and ground speed.

A) 057° (T) - 154 kts.

B) 050° (T) - 145 kts.

C) 061° (T) - 143 kts.

D) 041° (T) - 144 kts.

175- Given:

TAS: 480 kts

HDG: 040° (T)

W/V: 090°/60 kts

Calculate the track and GS.

A) 022° (T) - 425 kts.

B) 028° (T) - 415 kts.

C) 034° (T) - 445 kts.

D) 041° (T) - 435 kts.

176- Given

TAS: 465kts

Track: 007° (T)

W/V: 300°/80 kts

Calculate the HDG and ground speed.

A) 020° (T) - 430 kts.

B) 018° (T) - 432 kts.

C) 358° (T) - 428 kts.

D) 348° (T) - 438 kts.

177- Given:

TAS: 130 kts
Track: 003° (T)
W/V: 190°/40 kts

Calculate the HDG and ground speed.

- A) 012° (T) - 160 kts.
- B) 001° (T) - 170 kts.
- C) 348° (T) - 166 kts.
- D) 350° (T) - 165 kts.

178- Given:

P.A: FL290
OAT: -50 °C

Calculate the density altitude.

- A) 32,500 ft
- B) 28,000 ft
- C) 31,000 ft
- D) 27,500 ft

179- Given:

CAS: 300 kts
Mach number: 0.76

What is the Pressure Altitude?

- A) 26,000 ft
- B) 28,000 ft
- C) 30,000 ft
- D) 32,000 ft

180- The pressure altitude is 29,000 feet and the SAT is -55°C. What is density altitude?

- A) 27,500 feet.
- B) 26,000 feet.
- C) 30,000 feet.
- D) 31,000 feet.

181- Given:

P.A: FL150
OAT: -35° C

What is the density altitude?

- A) 12,500 ft
- B) 17,500 ft
- C) 11,000 ft
- D) 18,000 ft

182- Given:

Aircraft at FL150 overhead an airport

Field elevation: 720 ft

QNH: 1003 hPa

OAT at FL150: -5°C

What is the true altitude of the aircraft? (Assume 1 hPa = 27 ft)

- A) 15,940 ft
- B) 15,280 ft
- C) 14,160 ft
- D) 14,720 ft

183- You want to fly 12,000 ft above a frozen lake (elevation 930 ft AMSL). You have obtained QNH from an airfield in the area. Climbing, you observe that the air temperature at FL080 is -20°C. What should your indicated altitude be when you are 12,000 ft above the frozen lake? Use the mechanical computer for the calculations.

- A) 14,350 ft
- B) 12,000 ft
- C) 12,560 ft
- D) 13,950 ft

184- Given:

P.A & Calibrated Alt.: 10,000 ft

OAT: +15° C

What is true altitude?

- A) 9,260 ft
- B) 10,750 ft
- C) 8,480 ft
- D) 11,830 ft

185- Airfield elevation is 1,000 feet. The QNH is 1035 (Use 27 feet per mill bar). What is the pressure altitude?

- A) 1,675 ft
- B) 1,594 ft
- C) 406 ft
- D) -594 ft

186- What is the ISA temperature value at FL330?

- A) -56°C
- B) -66° C
- C) -81°C
- D) -51 °C

187- An aircraft at FL370 is required to commence descent at 120 NM from a VOR and to cross the facility at FL130. If the mean ground speed for the descent is 288 kts, the minimum rate of descent required is:

- A) 960 ft/min.
- B) 860 ft/min.
- C) 890 ft/min.
- D) 920 ft/min.

188- Distance from A to B is 120 NM. After 30 NM aircraft is 3 NM to the left of course. What heading alteration should be made in order to arrive at point B?

- A) 8° left.
- B) 6° right.
- C) 4° right.
- D) 8° right.

189- Given:

True Track: 352°
Variation: 11° W
Deviation: -5°
Drift: 10° R

What is the compass heading?

- A) 078°
- B) 346°
- C) 358°
- D) 025°

190- Given:

True track: 300°
Drift: 8°R
Variation: 10°W
Deviation: -4°

Calculate the compass heading?

- A) 306°
- B) 322°
- C) 294°
- D) 278°

191- In still air, you wish to fly a true heading of 315°, Variation is 4 °W. Deviation is 2 °E. What compass heading should you fly?

- A) 321
- B) 313
- C) 317
- D) 309

192- Given:

Variation: 7 °W

Deviation: 4 °E

If the aircraft is flying a compass heading of 270°, the true and magnetic headings are:

- A) 274°(T); 267°(M).
- B) 267°(T); 274°(M).
- C) 277°(T); 281°(M).
- D) 263°(T); 259°(M)

193- Given:

True track: 245°

Drift: 5° right

Variation: 3°E

Compass HDG: 242°

Calculate the magnetic heading.

- A) 247°
- B) 243°
- C) 237°
- D) 253°

194- If the compass heading is 265°, variation is 33°W and deviation is 3°E, what is the true heading?

- A) 229°
- B) 235°
- C) 301°
- D) 295°

195- Given:

True track: 180°

Drift: 8°R

Compass heading: 195°

Deviation: -2°

Calculate the variation.

- A) 25 °W
- B) 21 °W
- C) 5 °W
- D) 9 °W

196- Given:

True track: 245°
Drift 5° right
Variation: 3° E
Compass heading: 242°

Calculate the deviation.

- A) 11° E
- B) 1° E
- C) 5° E
- D) 5° W

197- Given:

True track: 192°
Magnetic variation: 7° E
Drift angle: 5° left

What is the magnetic heading required to maintain the given track?

- A) 190°
- B) 194°
- C) 204°
- D) 180°

198- What is the value of magnetic dip at the south magnetic pole?

- A) 360°
- B) 180°
- C) 90°
- D) 0°

199- What is the maximum possible value of dip angle?

- A) 66°
- B) 180°
- C) 90°
- D) 45°

200- Given magnetic heading 075° , variation 4° W, Drift angle 12° R and relative bearing to the station is 270° . What is the true bearing of the aircraft from the station?

- A) 149°
- B) 173°
- C) 169°
- D) 161°

201- Given:

True track: 070°
Variation: 30 °W
Deviation: +1°
Drift: 10°R

Calculate the compass heading.

- A) 100°
- B) 091°
- C) 089°
- D) 101°

202- You are flying a constant compass heading of 252° variation is 22°E, deviation 3°W and your INS is showing a drift of 9° to the right, true track is?

- A) 280°
- B) 262°
- C) 242°
- D) 224°

203- Ground speed is 540 knots. 72 NM to go. What is time to go?

- A) 8 mins
- B) 9 mins
- C) 18 mins
- D) 12 mins

204- Given:

Ground Speed: 122 kts
Distance from A to B: 985 NM
What is the time from A to B?

- A) 7 hrs 48 min
- B) 8 hrs 04 min
- C) 7 hrs 49 min
- D) 8 hrs 10 min

205- Given:

Ground Speed: 510 kts
Distance A to B: 43 NM
What is the time (min) from A to B?

- A) 6
- B) 4
- C) 5
- D) 7

206- Given:

Distance A to B: 325 NM

Planned G/S: 315 kts

ATD: 1130 UTC

1205 UTC - fix obtained 165 NM along track. What G/S must be maintained from the fix in order to achieve planned ETA at B?

- A) 335 kts
- B) 375 kts
- C) 395 kts
- D) 355 kts

207- Given:

Ground Speed: 135kts

Distance from A to B: 433 NM

What is the time from A to B?

- A) 3 hrs 29 min
- B) 3 hrs 25 min
- C) 3 hrs 19 min
- D) 3 hrs 12 min

208- Given:

Ground Speed: 435 kts

Distance from A to B: 1920 NM

What is the time from A to B?

- A) 4 hrs 10 min
- B) 3 hrs 25 min
- C) 3 hrs 26 min
- D) 4 hrs 25 min

209- If it takes 1324 min to travel 840 NM, what is your ground speed?

- A) 70.5 km/h
- B) 290 km/h
- C) 120 km/h
- D) 96.6 km/h

210- Given:

Ground Speed: 240 kts

Distance to go: 500 NM

What is time to go?

- A) 20 min
- B) 29 min
- C) 2 hrs 05 min
- D) 2 hrs 12 min

211- Course 040°T, TAS 120 kts, wind speed 30 kts. From which direction will the wind give the greatest drift:

- A) 215° (T)
- B) 230° (T)
- C) 235° (T)
- D) 240° (T)

212- How many NM would an aircraft travel in 1 min 45 sec If ground speed is 135 kts?

- A) 39.0 NM
- B) 2.36 NM
- C) 3.25 NM
- D) 3.94 NM

213- An aircraft travels 2.4 statute miles in 47 seconds. What is its ground speed?

- A) 183 kts
- B) 160 kts
- C) 209 kts
- D) 131 kts

214- Given:

Ground Speed: 480 kts

Distance from A to B: 5360 NM

What is the time from A to B?

- A) 11 hrs 07 min
- B) 11 hrs 06 min
- C) 11 hrs 10 min
- D) 11 hrs 15 min

215- An aircraft travels 100 statute miles in 20 minutes, how long does it take to travel 215 NM?

- A) 50 min
- B) 100 min
- C) 90 min
- D) 80 min

216- Given:

Ground Speed: 345 kts

Distance from A to B: 3560 NM

What is the time from A to B?

- A) 10 hrs 19 min
- B) 10 hrs 05 min
- C) 11 hrs 00 min
- D) 11 hrs 02 min

217- How long will it take to travel 284 NM at speed of 526 km/h?

- A) 1.6 hrs
- B) 1.9hrs
- C) 45 min
- D) 1 hour

218- How long will it take to fly 5 NM at a ground speed of 269 kts?

- A) 1 min 07 sec
- B) 1 min 55 sec
- C) 2 min 30 sec
- D) 0 min 34 sec

219- Given:

Ground Speed: 236 kts

Distance from A to B: 354 NM

What is the time from A to B?

- A) 1 hr 09 min
- B) 1 hr 30 min
- C) 1 hr 10 min
- D) 1 hr 40 min

220- 265 US Gal. equals? (Specific gravity 0.80)

- A) 862 kg
- B) 803 kg
- C) 895 kg
- D) 940 kg

221- A fuel amount of 160 US Gal allows endurance of 3 hrs 10 min with a light twin engine piston aircraft. What is the corresponding fuel flow per engine?

- A) 25.3 US Gal/hr
- B) 50.5 US Gal/hr
- C) 51.6 US Gal/hr
- D) 25.8 US Gal/hr

222- 730 ft/min equals:

- A) 3.7 m/sec
- B) 5.2 m/sec
- C) 1.6 m/sec
- D) 2.2 m/sec

223- Given:

CAS: 324 kts

P.A: FL290

OAT: -46 °C

What is the TAS?

- A) 487 kts
- B) 473 kts
- C) 458 kts
- D) 444 kts

224- Given:

True heading: 310°

TAS: 200 kts

Ground Speed: 176 kts

Drift angle: 7° right

Calculate the W/V.

- A) 090°/33 kts.
- B) 360°/33 kts.
- C) 270°/33 kts.
- D) 180°/33 kts.

225- Given:

Magnetic track: 315°

HDG: 301° (M)

VAR: 5°W

TAS: 225 kts

The aircraft flies 50 NM in 12 min. Calculate the W/V.

- A) 195° (T)/63 kts.
- B) 355° (T)/15 kts.
- C) 195° (T)/61 kts.
- D) 190° (T)/63 kts.

226- Given:

Compass heading: 090°

Deviation: 2°W

Variation: 12°E

TAS: 160 Kts

Whilst maintaining a radial 070° from a VOR station, the aircraft flies a ground distance of 14 NM in 6 min. What is the W/V° (T)?

- A) 155°/25 kts.
- B) 340°/25 kts.
- C) 340°/98 kts.
- D) 160°/50 kts.

227- A fuel amount of 146 Imp Gal allows an endurance 4hrs 26 min. What is the corresponding fuel flow?

- A) 34.3 Imp Gal/hr
- B) 32.9 US Gal/hr
- C) 39.5 US Gal/hr
- D) 39.5 Imp Gal/hr

228- Given:

True track: 239°

True heading: 229°

TAS: 555 kts

Ground Speed: 577 kts

Calculate the wind velocity.

- A) 300°/100 kts
- B) 310°/100 kts
- C) 130°/100 kts
- D) 165°/100 kts

229- Fuel flow is 22 US gallon per hour, total fuel on board is 83 IMP gallon. What is the endurance?

- A) 4 hrs 35 min
- B) 3 hrs 12 min
- C) 3 hrs 53 min
- D) 2 hrs 15 min

230- Given:

P.A: FL310

Mach No.: 0.76

What is the CAS?

- A) 280 kts
- B) 274 kts
- C) 292 kts
- D) 287 kts

231- What is the pressure altitude, if outside air temperature is – 36 °C and density altitude equals 31,000 ft?

- A) 32,000 ft
- B) 33,000 ft
- C) 30,000 ft
- D) 29,000 ft

232- Find the speed of sound if the ambient air temperature is -45°C at FL360?

- A) 555 Kts
- B) 586 Mph
- C) 586 Kts
- D) 555 Mph

233- An aeroplane flies at FL330 and Mach number is 0.77, what is required calibrated airspeed?

- A) 253 Kts
- B) 271 Kts
- C) 302 Kts
- D) 311 Kts

234- 121 Mph is equal to knots.

- A) 141
- B) 115
- C) 131
- D) 105

235- If the Effective True Airspeed is obtained 145 knots by 19° wind correction angle to the left, determine the TAS?

- A) 136 Kts
- B) 153 Kts
- C) 140 Kts
- D) 139 Kts

236- Given:

True Course: 200°

True Air Speed: 115 Kts

Wind: $260^{\circ} (T) / 30 \text{ kts}$

Calculate the ground speed?

- A) 130 Kts
- B) 127 Kts
- C) 107 Kts
- D) 97 Kts

237- Determine the fuel volume if the mass is 220.5 pounds and its S.G is 0.78?

- A) 34 Liters
- B) 43 US Gallon
- C) 34 US Gallon
- D) 43 Liters

238- Given:

Pressure Altitude: 28,000 ft

Outside Air Temperature: -30°C

Calibrated Altitude: 27,800 ft

Find True Altitude.

- A) 29,800 ft
- B) 29,000 ft
- C) 27,800 ft
- D) 27,000 ft

239- Given:

Indicated Air Temperature: +10 C

Calibrated Air Speed: 280 Kts

Pressure Altitude: 23,000 ft

$C_T = 0.8$

Find the TAS?

- A) 411 Kts
- B) 391 Kts
- C) 441 Kts
- D) 381 Kts

240- Given:

True Course: 200 °

True Air Speed: 125 Kts

True Heading: 214 °

Ground Speed: 141 Kts

Calculate wind direction and velocity?

- A) 302° / 26 Kts
- B) 232° / 26 Kts
- C) 323° / 36 Kts
- D) 282° / 35 Kts

241- How long does it take to fly 240 NM at 115 knots ground speed?

- A) 125 minutes
- B) 100 minutes
- C) 105 minutes
- D) 135 minutes

242- Given:

Mach No.: 0.70

Indicated air temperature: -30°C

$C_T=0.8$

Calculate the outside air temperature?

- A) $+47.6^{\circ}\text{C}$
- B) -17.6°C
- C) -47.6°C
- D) -17.6°C

243- Determine the compass heading:

True Course: 225°

Variation: 6°W

Drift Angle: 8°Right

Deviation: $+5^{\circ}$

- A) 228°
- B) 218°
- C) 206°
- D) 216°

244- Determine the rate of climb (ft/min) by the following information:

Ground Speed: 110 Kts

Climb Gradient: 330 ft/NM

- A) 506
- B) 605
- C) 565
- D) 665

245- Determine the Time to turn, if:

True Air Speed: 105 Kts

True Course: 080°

Wind: $230^{\circ}\text{(T)} / 35\text{ Kts}$

Fuel Available: 2.75 Hours

- A) 01:46'
- B) 01:20'
- C) 00:59'
- D) 01:25

246- Find the Calibrated Air Speed, if:

True Air Speed: 450 Kts

OAT: -40 ° C

Pressure Altitude: FL340

- A) 262 Kts
- B) 292 Kts
- C) 450 Kts
- D) 405 Kts

247- Given:

True Course: 305 °

True Air Speed: 145 Kts

Wind: 110 ° (T) / 30 Kts

Variation: 3 ° W

Deviation: -2 °

Determine the Magnetic Heading.

- A) 311°
- B) 300°
- C) 321°
- D) 291°

248- If density altitude is 30,000 ft and ambient air temperature is 0°C, what is the approximate pressure altitude?

- A) FL280
- B) FL290
- C) FL260
- D) FL310

249- Calculate the leg time if the planned ground speed is 154 Knots and distance is 100 NM?

- A) 44 minutes
- B) 48 minutes
- C) 28 minutes
- D) 39 minutes

250- 11,000 meters equals to feet.

- A) 35,090
- B) 36,090
- C) 3,590
- D) 3,690

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	A	41	C	81	B	121	D
2	B	42	D	82	D	122	A
3	A	43	D	83	C	123	D
4	A	44	C	84	B	124	A
5	A	45	B	85	D	125	A
6	C	46	A	86	B	126	C
7	A	47	A	87	B	127	A
8	A	48	A	88	B	128	B
9	B	49	B	89	C	129	A
10	C	50	B	90	A	130	D
11	D	51	C	91	C	131	B
12	C	52	C	92	D	132	B
13	D	53	A	93	B	133	D
14	A	54	C	94	B	134	A
15	D	55	A	95	A	135	C
16	A	56	A	96	A	136	B
17	B	57	C	97	A	137	D
18	C	58	A	98	A	138	B
19	D	59	B	99	D	139	C
20	D	60	A	100	B	140	C
21	C	61	D	101	B	141	A
22	B	62	A	102	C	142	A
23	A	63	B	103	B	143	A
24	A	64	C	104	B	144	A
25	B	65	D	105	D	145	A
26	B	66	B	106	A	146	D
27	B	67	A	107	D	147	D
28	C	68	D	108	B	148	D
29	A	69	A	109	A	149	A
30	D	70	C	110	C	150	B
31	D	71	A	111	B	151	C
32	C	72	D	112	A	152	B
33	B	73	B	113	A	153	C
34	A	74	C	114	C	154	C
35	B	75	D	115	D	155	D
36	C	76	A	116	B	156	A
37	C	77	B	117	C	157	A
38	C	78	D	118	C	158	A
39	A	79	C	119	D	159	A
40	B	80	B	120	B	160	B

Question	Answer	Question	Answer	Question	Answer	Question	Answer
161	C	186	D	211	D	236	D
162	C	187	A	212	D	237	C
163	A	188	D	213	B	238	B
164	D	189	C	214	C	239	A
165	A	190	A	215	A	240	C
166	A	191	C	216	A	241	A
167	A	192	B	217	D	242	C
168	D	193	C	218	A	243	B
169	A	194	B	219	B	244	B
170	B	195	B	220	B	245	C
171	B	196	D	221	A	246	A
172	A	197	A	222	A	247	A
173	C	198	C	223	A	248	C
174	B	199	C	224	C	249	D
175	C	200	D	225	D	250	B
176	C	201	C	226	D		
177	B	202	A	227	C		
178	B	203	A	228	C		
179	B	204	B	229	A		
180	A	205	C	230	A		
181	A	206	D	231	C		
182	B	207	D	232	C		
183	D	208	D	233	B		
184	B	209	A	234	D		
185	C	210	C	235	B		

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Human Performance



1- What is hypoxia?

- A) A total absence of oxygen in the body's tissue.
- B) A more than normal amount of nitrogen in the body's tissue.
- C) A less than normal amount of oxygen in the lungs.
- D) A more than normal amount of oxygen in the lungs.

2- What does the central nervous system consist of?

- A) The brain
- B) The brain and spinal cord
- C) The brain, spinal cord and reflex systems
- D) The brain, spinal cord, reflex systems and proprioceptive system

3- The chemical composition of the Earth's atmosphere (ICAO standard atmosphere) is:

- A) 71% nitrogen, 28% oxygen, 0.9% argon, 0.03% carbon dioxide.
- B) 71% nitrogen, 28% oxygen, 0.9% carbon dioxide, 0.03% argon.
- C) 78% nitrogen, 21% oxygen, 0.9% carbon dioxide, 0.03% argon.
- D) 78% nitrogen, 21% oxygen, 0.9% argon, 0.03% carbon dioxide.

4- Hypoxia can be prevented when the pilot:

- A) Is using additional oxygen when flying above 10,000 ft.
- B) Is relying on the body's built-in warning system recognizing any stage of hypoxia.
- C) Is swallowing, yawing and applying the Valsalva method.
- D) Will not exceed 20,000 ft cabin pressure altitude.

5- Healthy people are usually capable to compensate for a lack of oxygen up to:

- A) 15,000 feet.
- B) 10,000 – 12,000 feet.
- C) 20,000 feet.
- D) 25,000 feet.

6- Physiological problems due to increasing altitude are caused by:

- A) Accelerations.
- B) Disorientation
- C) Decreased atmospheric pressure.
- D) Increased atmospheric pressure.

7- What is the Time of Useful Consciousness?

- A) The pilot's reaction time when faced with hypoxia.
- B) The time taken to become aware of hypoxia due gradual decompression.
- C) The length of time during which an individual can act with both mental and physical efficiency and alertness, measured from the moment at which he loses his available oxygen supply.
- D) The period of time between the start of hypoxia and the moment that the pilot becomes aware of it.

8- What could cause hyperventilation?

- A) Extreme low rate of breathing.
- B) Abuse of alcohol.
- C) Fear, anxiety and distress.
- D) Fatigue

9- What is hypoxia?

- A) A state characterized by an excessive supply of oxygen which may be due to maladjustment of the mask.
- B) The total absence of oxygen in the air.
- C) The respiratory symptom associated with altitude decompression sickness.
- D) Any condition where the oxygen concentration of the body is below normal limits or where the oxygen available to the body cannot be used due to some pathological condition.

10- After a rapid decompression at an altitude of 30,000 ft the first action of the pilot shall be:

- A) Maintaining aircraft control and preventing hypoxia (use of oxygen mask).
- B) Informing ATC.
- C) Informing the cabin crew.
- D) Preventing panic of the passengers.

11- When exhaling, the expired air contains:

- A) More oxygen than the inhaled air.
- B) More carbon dioxide than the inspired air.
- C) Less water vapor than the inhaled air.
- D) More nitrogen than the inhaled air.

12- Anxiety and fear can cause:

- A) Spatial disorientation.
- B) Hyperventilation.
- C) Hypoxia.
- D) Hypoglycemia.

13- A good method to treat hyperventilation is to:

- A) Don an oxygen mask.
- B) Execute the valsalva maneuver.
- C) Talk oneself through the relevant procedure aloud to emotionally calm down and reduce the rate of breathing simultaneously.
- D) Close the eyes and relax.

14- Oxygen, combined with hemoglobin in blood is transported by:

- A) White blood cells.
- B) Platelets.
- C) Red blood cells.
- D) Blood plasma.

15- Hyperventilation is:

- A) A decreased lung ventilation.
- B) A too high percentage of nitrogen in the blood.
- C) An increased lung ventilation.
- D) A too high percentage of oxygen in the blood.

16- Exchange of gasses between the body and the environment takes place at the:

- A) Central nervous system.
- B) Heart.
- C) Muscles.
- D) Lungs.

17- Hypoxia is caused by:

- A) A higher affinity of the red blood cells (hemoglobin) to oxygen.
- B) Reduced partial pressure of nitrogen in the lung.
- C) An increased number of red blood cells.
- D) Reduced partial oxygen pressure in the lung.

18- According to the ICAO standard atmosphere, the temperature lapse rate of the troposphere is approximately:

- A) -2°C every 1,000 feet.
- B) 10 °C every 100 feet.
- C) 2 °C every 1,000 meters.
- D) Constant in the troposphere.

19- Early symptoms of hypoxia could be:

- 1) Euphoria
- 2) Decreased rate and depth of breathing
- 3) Lack of concentration
- 4) Visual disturbances

- A) 1,2,4
- B) 1,2,3,4
- C) 1,2,3
- D) 1,3,4

20- The percentage of oxygen in the air at an altitude of approximately 34,000 ft is:

- A) 21%
- B) 5%
- C) 10.5%
- D) 42%

21- Hypoxia can also be caused by:

- A) A lack of nitrogen in ambient air.
- B) Too much carbon dioxide in the blood.
- C) Increasing oxygen partial pressure used for the exchange of gases.
- D) A lack of red blood cells in the blood or decreased ability of the hemoglobin to transport oxygen.

22- The barometric pressure has dropped to 1/2 of the pressure at sea level at:

- A) 18,000 feet.
- B) 10,000 feet.
- C) 25,000 feet.
- D) 30,000 feet.

23- A pilot can overcome hyperventilation by:

- A) The use of drugs stabilizing blood pressure.
- B) Depending on instruments.
- C) Increasing the rate and depth of breathing to eliminate harmful carbon dioxide.
- D) Controlling the rate and depth of breathing, breathing into a bag or speaking with a loud voice.

24- Adverse effects of carbon monoxide increase as:

- A) Air pressure increases.
- B) Altitude decreases.
- C) Altitude increases.
- D) Relative humidity decreases.

25- Hyperventilation is due to an excessive rate of breathing and can produce the following symptoms:

- A) Blue finger-nails and lips.
- B) Dizziness, tingling sensation in the fingers and toes, nausea and blurred vision.
- C) Reduced heart rate and increase in visual acuity.
- D) A state of overconfidence and reduced heart rate.

26- The volume percentage of oxygen in the atmosphere at 30,000 feet remains at 21%, but the partial pressure of oxygen:

- A) Decreases with decreasing barometric pressure.
- B) Remains constant, independent from altitude.
- C) Increases by expansion.
- D) Decreases significantly with lower temperatures.

27- The main function of the red blood cells is:

- A) The cellular defense of the organism.
- B) To participate in the process of coagulation of the blood.
- C) To transport oxygen.
- D) To contribute to the immune response of the organism.

28- Which of the following statements concerning hypoxia is correct?

- A) It has little effect on the body, because the body can always compensate for it.
- B) It is never a problem at altitudes below 25,000 ft.
- C) It activates the senses and makes them function better.
- D) It is a potential threat to safety.

29- Which statement(s) is (are) correct?

1) Euphoria can be a symptom of hypoxia.

2) Someone in an euphoric condition is more prone to error.

- A) 1 is correct, 2 is not correct.
- B) 1 is not correct, 2 is correct.
- C) 1 and 2 are both not correct.
- D) 1 and 2 are both correct.

30- Which measurer(s) will help to compensate hypoxia?

1) Descend below 10,000 ft.

2) Breathe 100% oxygen.

3) Climb to or above 10,000 ft.

4) Reduce physical activities.

- A) 1, 2 and 3 are correct.
- B) Only 1 is correct.
- C) 1 and 2 are correct, 3 and 4 are false.
- D) 1, 2 and 4 are correct.

31- The atmosphere is a mixture of gases and the largest part is:

- A) Oxygen
- B) Nitrogen
- C) Helium
- D) Hydrogen

32- The total air pressure at 33,700 ft is 190 mmHg. What is the partial pressure of oxygen?

- A) 148 mmHg.
- B) 380 mmHg.
- C) 3.8 mmHg.
- D) Approximately 39 mmHg.

33- What is most correct regarding hypoxia?

- A) It is an abnormal reduction of the hemoglobin content of the red blood cells.
- B) It is the result of insufficient oxygen in the blood stream.
- C) It causes chest pain.
- D) It is caused by too much CO₂ in the air.

34- Hypoxia is the result of:

- A) High barometric pressure at higher altitudes.
- B) Excessive nitrogen in the bloodstream.
- C) Decreasing amount of oxygen as your altitude increases.
- D) Both A and B are correct.

35- List the four major types of hypoxia, which are classified according to the cause of the hypoxia.

- A) Hypoxic, hypanemic, stagnant and histotoxic.
- B) Hypoxic, hypanemic, hyperventic and histotoxic.
- C) Anemic, angina, stroke and seizure.
- D) Altitude, CO, hyperventilation and self-induced.

36- To overcome the symptoms of hyperventilation, a pilot should:

- A) Swallow or yawn.
- B) Increase the breathing rate.
- C) Slow the breathing rate.
- D) Use 100% oxygen.

37- Carbon monoxide (CO) poisoning in flight:

- A) Presents an extremely dangerous situation as the blood may not be able carry sufficient amounts of oxygen to vital cells and tissues of the body.
- B) Can be cured by breathing into a plastic bag to retain the carbon monoxide.
- C) Is usually harmless because oxygen is more easily attached to hemoglobin than carbon monoxide to a magnitude of 200 times.
- D) Is a complication when hyperventilating and requires its own special and individual treatment.

38- Carbon monoxide poisoning can be treated by:

- A) Increasing the amount of oxygen being physically dissolved in the blood.
- B) Decreasing the amount of oxygen being combined with the hemoglobin in the blood.
- C) Increasing the amount of nitrogen being physically dissolved in the blood.
- D) Breathing into a paper bag.

39- Hemoglobin has an affinity for carbon monoxide of times over oxygen.

- A) 50 - 75
- B) 210 -250
- C) 5 - 10
- D) 500 -1000

40- The percentage of oxygen in the troposphere in dry air:

- A) Is dependent of the partial pressure which is constant above sea level.
- B) Increases with longitude.
- C) Is independent of altitude.
- D) Is variable because oxygen replaces water vapor.

41- The most dangerous sign of hypoxic hypoxia is:

- A) Impaired judgment.
- B) Decreased heart rate.
- C) Increased respiration rate.
- D) Bluish skin.

42- The symptoms of hyperventilation are easily confused with those of:

- A) Hypoxia
- B) Hypertension
- C) Hypotension
- D) Hyperopic

43- What is the approximate percentage of nitrogen in the atmosphere at 25,000 ft?

- A) 1%
- B) 78%
- C) 43%
- D) 21%

44- The effect of hypoxia to vision:

- A) Can only be detected when smoking tobacco.
- B) Is usual stronger on the cones
- C) Is stronger on the rods.
- D) Does not depend on the level of illumination.

45- The part(s) of the eye responsible for night vision:

- A) Are rods and cones.
- B) Are the cones.
- C) Are the rods.
- D) Is the cornea.

46- The time required for complete adaptation is:

- A) For day and night: 30 min.
- B) For high levels of illumination 10 minutes and for low levels of illumination 30 minutes.
- C) For high levels of illumination 10 sec and for full dark adaptation 30 min.
- D) For night 10 sec and for day 30 min.

47- Rods (visual cells) allow for:

- A) Precise vision of contours and colors.
- B) Good, virtually instantaneous night vision.
- C) Good night vision after adaptation to darkness (30 min).
- D) Red vision, both during the day and at night.

48- When flying at night the first sense to be affected by a slight degree of hypoxia is the:

- A) Proprioceptive sensitivity.
- B) Cochlea.
- C) Sense of balance.
- D) Vision.

49- The retina of the eye:

- A) Only regulates the light that falls into the eye.
- B) Filters the UV-light.
- C) Is the muscle changing the size of the crystalline lens.
- D) Is the light-sensitive inner lining of the eye containing the photoreceptors essential for vision.

50- The fovea centralis is:

- A) Where the optic nerves come together with the pupil.
- B) The area of best day vision and best night vision.
- C) The area of best day vision and no night vision at all.
- D) The area of the blind spot (optic disc).

51- When you stare at a single light against the dark (e.g. an isolated star) you will find the light appears to move after some time. This phenomenon is called:

- A) Black hole illusion.
- B) Autokinesis illusion.
- C) Coriolis illusion.
- D) Leans.

52- Autokinesis can give the pilot the impression that:

- A) Lights are further away than in fact they are.
- B) The aircraft is climbing.
- C) Lights from ships are stars.
- D) A star is another aircraft.

53- Hypoxia can affect night vision:

- A) Less than day vision.
- B) At approximately 5,000 ft.
- C) And causes the auto kinesis phenomena.
- D) And causes the Coriolis Effect.

54- Color vision is performed by three different classes of cones:

- A) Yellow, blue, red.
- B) Green, blue, yellow.
- C) Red, yellow, blue
- D) Red, green, blue.

55- How should you scan for other traffic at night?

- A) Scan the visual field very rapidly.
- B) Look to the side of the object and scan rapidly.
- C) Look to the side of the object and scan slowly.
- D) Look above or below the object and scan rapidly.

56- Cigarette smoking has particular significance to the flyer, because there are long-term and short-term harmful effects. From cigarette smoking the pilot can get:

- A) A mild carbon monoxide poisoning increasing the pilot's tolerance to hypoxia.
- B) A suppressed desire to eat and drink.
- C) A mild carbon monoxide poisoning decreasing the pilot's tolerance to hypoxia.
- D) A mild carbon dioxide poisoning increasing the pilot's tolerance to hypoxia.

57- The chemical substance responsible for addiction to tobacco is:

- A) Carbon monoxide.
- B) Tar.
- C) The combination of nicotine, tar and carbon monoxide.
- D) Nicotine.

58- Susceptibility to carbon monoxide poisoning, as from smoking tobacco, increases as:

- A) Air pressure increases.
- B) Altitude decreases.
- C) Air temperature increases.
- D) Altitude increases.

59- The person with overall responsibility for the flight is the:

- A) Co-pilot.
- B) Pilot-in-command.
- C) Flight operation officer.
- D) Air traffic controller.

60- In Bright light, the best vision is obtained by looking:

- A) Directly at the object.
- B) Off center of the object.
- C) With quick scanning motions.
- D) With your peripheral vision.

61- To see an object most clearly at night, you should look:

- A) Directly at the object.
- B) 5° to 10 ° away from the object.
- C) 45° away from the object.
- D) In quick scanning movements.

62- What part of the retina is most active during periods of darkness?

- A) The entire retina.
- B) Fovea.
- C) Rods.
- D) Cones.

63- Before a night flight, you should avoid bright lights for at least minutes.

- A) 15
- B) 30
- C) 45
- D) 60

64- Inhaled oxygen is carried to the cells of your body by attaching to in your bloodstream.

- A) Hemoglobin
- B) Lungs
- C) Vessels
- D) Veins

65- A condition where there is insufficient oxygen in your body because there is not enough oxygen in the air is referred to as:

- A) Anemic hypoxia.
- B) Hypoxic hypoxia.
- C) Hyperventilation.
- D) Carbon monoxide poisoning.

66- The time you have to make a rational and lifesaving decision following a lack of oxygen at a given altitude is known as the time of:

- A) Useful consciousness.
- B) Useful unconsciousness.
- C) Euphoria.
- D) Impaired judgment.

67- Carbon monoxide poisoning produces a state of in the body.

- A) Anemic Hypoxia
- B) Hypoxic hypoxia
- C) Histotoxic hypoxia
- D) Stagnant hypoxia

68- Breathing large amounts of carbon monoxide can result in:

- A) A warm sensation.
- B) Loss of muscle power.
- C) An increased sense of well-being.
- D) Tightness across the forehead and neck.

69- Rapid and deep breathing, even when you are using supplemental oxygen, can cause a condition known as:

- A) The bends.
- B) Anemic hypoxia.
- C) Hypoxic hypoxia.
- D) Hyperventilation.

70- When you consume alcohol, your physiological altitude:

- A) Increases.
- B) Decreases.
- C) Does not affect.
- D) It depends on individual metabolism.

71- The physiological altitude of a smoker is raised from sea level to about:

- A) 5,000 feet.
- B) 7,000 feet.
- C) 11,000 feet.
- D) 12,000 feet.

72- What is the most effective way to use the eyes during night flight?

- A) Look only at far away, dim lights.
- B) Scan slowly to permit off center viewing.
- C) Concentrate directly on each object for a few second.
- D) Scan slowly and look directly at objects.

73- What is the symptom of carbon monoxide poisoning?

- A) Rapid, shallow breathing.
- B) Pain and cramping of the hands and feet.
- C) Dizziness.
- D) Bubbles in blood and bending.

74- Which would most likely result in hyperventilation?

- A) A stressful situation causing anxiety.
- B) The excessive consumption of alcohol.
- C) An extremely slow rate of breathing and insufficient oxygen.
- D) Breathing carbon monoxide unintentionally.

75- Which is a common symptom of hyperventilation?

- A) Tingling of the hands, leg and feet.
- B) Increased vision keenness.
- C) Decreased breathing rate.
- D) Blue finger nails and lips.

76- A fatigued pilot:

- A) Considerably increases the ability to concentrate.
- B) Will show signs of increased irritability.
- C) Is acting similar as when encountering a state of depression.
- D) Will get precordial pain.

77- The organ which metabolism alcohol from the body is the:

- A) Liver.
- B) Spleen.
- C) Pancreas.
- D) Kidneys.

78- Concerning flying and blood alcohol content the following statement is correct:

- A) No flying under the influence of alcohol.
- B) Flying with up to 0.05% blood alcohol.
- C) Flying with up to 0.15% blood alcohol.
- D) Flying with up to 0.08% blood alcohol is safe.

79- The following statements about alcohol, which is true?

- A) A blood alcohol content of 0.05% leads to unconsciousness.
- B) A unit of alcohol is equal to 50 ml of pure alcohol.
- C) A few drinks can make a person sleep better.
- D) Alcohol will lower the tolerance for hypoxia.

80- The decision making in emergency situations requires firstly:

- A) The whole crew to focus on the problem.
- B) Speed of reaction.
- C) Informing ATC thoroughly about the situation.
- D) Distribution of tasks and crew coordination.

81- Define situational awareness:

- A) The ability to rank tasks according to importance and to solve problems.
- B) The right to have and express your own feelings and ideas.
- C) The perception of the elements in the environment within a volume of space and time, the comprehension of their meaning and the projection of their status in the near future.
- D) The perception of the elements in the environment within a volume of space.

82- CRM (Crew Resource Management) training is:

- A) Intended to develop effectiveness of crew performance by improving attitudes towards flight safety and human relationship management.
- B) Not intended to change the individual's attitude at all.
- C) Intended solely to alter an individual's personality.
- D) Is mainly of relevance to pilots with personality disorders or inappropriate attitudes.

83- Define effective communication:

- A) Effective communication is a transmission of a message from one brain to another.
- B) Effective communication is a transmission of a message from one brain to another with a minimum of change.
- C) Effective communication occurs when one person talks to another person.
- D) Effective communication occurs when one person.

84- Which factors can influence effective communications?

- A) Noise and voice.
- B) Workload, noise and voice.
- C) Voice.
- D) Workload and voice.

85- What is meant by the term CRM today?

- A) Cockpit resource management.
- B) Crew resource management.
- C) Company resource management.
- D) Crew reliability measurement.

86- “ It will not happen to me “, can be used as an example to illustrate which attitude?

- A) Resignation
- B) Anti-authority
- C) Macho
- D) Invulnerability

87- Which of the following is not a hazardous attitude?

- A) Domination
- B) Macho
- C) Anti-authority
- D) Impulsivity

88- A stress reactions:

- A) The specific response of the body to every demand placed on a person.
- B) The non-specific response of the body to every demand placed on a person.
- C) The non-specific stimuli causing a human body to respond.
- D) The specific stimuli causing a human body to respond.

89- Stress may be defined as:

- A) A normal phenomenon which enables an individual to adapt to encountered situations.
- B) A poorly controlled emotion which leads to a reduction in capabilities.
- C) A psychological phenomenon which only affects fragile personalities.
- D) A human reaction which one must manage to eliminate.

90- What is a stressor?

- A) A psychological problem developed in a situation of danger.
- B) The adaptation response of the individual to his environment.
- C) An external or internal stimulus which is interpreted by an individual as being stressful.
- D) All external stimulations are stressors since they modify.

91- Fatigue and stress:

- A) Lower the tolerance to hypoxia.
- B) Increase the tolerance to hypoxia.
- C) Do not affect hypoxia at all.
- D) Will increase the tolerance to hypoxia when flying below 15,000 feet.

92- In order to limit stress when flying, a pilot should:

- A) Drop activities outside work so as to focus on his work better.
- B) Forget about bad past experiences.
- C) Avoid anticipating events during a flight to manage his workload.
- D) Maintain his competence by practicing his professional skills and learning from past experiences.

93- Signs of stress include:

- A) Perspiration, dry mouth, dilated pupils, fast breathing.
- B) Lowering of the blood pressure.
- C) Faster, deep inhalation, stabbing pain around the heart.
- D) Rising of the blood pressure, pupils narrowing, stabbing pain around the heart.

94- The two types of fatigue are:

- A) Chronic and acute.
- B) Short-term and oppressive.
- C) Oppressive and negative.
- D) Heavy and light.

95- What does stress management involve?

- A) A constant stress prevention.
- B) A complete rejection of stress.
- C) The recognition and removal of stress.
- D) Recognizing stress, accepting it and developing a coping strategy.

96- Anxiety can affect:

- 1) Judgment
- 2) Attention
- 3) Memory
- 4) Concentration

- A) 1
- B) 1, 2, 3, 4
- C) 1, 2, 4
- D) 1, 2

97- Which of the following statements regarding stress is correct?

- A) Stress and anxiety are the same in every sense.
- B) Stress and fatigue are synonymous.
- C) Stress may be positive, fatigue is always negative.
- D) Stress always has a negative effect on performance.

98- The most dangerous symptoms of hypoxia at altitude are:

- A) Breathlessness and reduced night vision.
- B) Euphoria and impairment of judgment.
- C) Hyperventilation.
- D) Sensation of heat and blurred vision.

99- What triggers stress in humans?

- A) Always the awareness of an emotion and a physiological activation (e.g. rapid heart rate).
- B) The subjective interpretation an individual gives to a situation experienced.
- C) Objective stimulation from the environment regards of subjective perceptions.
- D) Only strong excitations of the sensory organs: a flash of light, noise, the smell of smoke.

100- Stress is a reaction in order to adapt to a specific situation. This reaction:

- A) Can only be controlled by medical treatment.
- B) Is purely physiological and automatic.
- C) May include various psychological and physiological elements which one can learn to manage.
- D) Is always linked to excessive fear.

101- What illusion can be created by rain on the windscreen?

- A) Does not cause illusion.
- B) Lower than actual distance.
- C) Higher than actual distance.
- D) It causes illusion only at nights.

102- Sudden penetration of fog can create the illusion of:

- A) Pitching up.
- B) Pitching down.
- C) Leveling off.
- D) Turning.

103- Haze can give the illusion that the aircraft is:

- A) Closer to the runway than it actually is.
- B) Farther from the runway than it actually is.
- C) The same distance from the runway as when there is no restriction to visibility.
- D) Does not cause illusion.

104- While making prolonged constant rate turns under IFR conditions, an abrupt head movement can create the illusion of rotation on an entirely different axis. This is known as:

- A) Auto kinesis.
- B) Coriolis illusion.
- C) The leans.
- D) Somatogravic illusion.

105- Which procedure recommended to prevent or overcome spatial disorientation?

- A) Reduce head and eye movement to the greatest possible extent.
- B) Rely on the kinesthetic sense.
- C) Rely entirely on the indications of the flight instruments.
- D) Use all the body signals to interpret the situation.

106- A pilot is more subject to spatial disorientation when:

- A) Ignoring or overcoming the sensation of muscles and inner ear.
- B) Eyes are moved often in the process of cross checking the flight instruments.
- C) Body sensations are used to interpret flight attitudes.
- D) Interpret and rely entirely on the indications of the flight instruments.

107- When using the Earth's horizon as a reference point to determine the relative position of other aircraft, most concern would be for aircraft:

- A) Above the horizon and increasing in size.
- B) On the horizon with little relative movement.
- C) On the horizon and increasing in size.
- D) Below the horizon and increasing in size.

108- Scanning procedures for effective collision avoidance should constitute:

- A) Looking outside for 15 seconds, then inside for 5 seconds, then repeat.
- B) 1 minute inside scanning, then 1 minute outside scanning, then repeat.
- C) Looking outside every 30 second except in radar contact when outside scanning is unnecessary.
- D) Scan rapidly outside, then monitor the instruments slowly, then repeat.

109- Which observed target aircraft would be of most concern with respect to collision avoidance?

- A) One which appears to be ahead and moving from left to right at high speed.
- B) One which appears to be ahead and moving from right to left at slow speed.
- C) One which appears to be ahead with no lateral or vertical movement and is increasing in size.
- D) A & B are correct.

110- What is the most effective way to use the eyes during night flight?

- A) Look only at far away, dim lights.
- B) Scan slowly to permit off center viewing.
- C) Concentrate directly on each object for a few second.
- D) Perform a series of quick short interval scans and look directly at objects.

111- The illusion of being in a nose up altitude which may occur during rapid acceleration takeoff is known as:

- A) Inversion illusion.
- B) Auto-kinesis.
- C) Somatogravic illusion.
- D) Leans.

112- When making a landing over darkened of featureless terrain such as water or snow, a pilot should be aware of the possibility illusion. The approach may appear, to be too:

- A) High.
- B) Low.
- C) Shallow.
- D) None of above.

113- When making an approach to a narrower than usual runway, without VASI assistance, the pilot should be aware that the approach:

- A) Altitude may be higher than it appears.
- B) Altitude may be lower than it appears.
- C) May result in leveling off too high and landing hard.
- D) May result in shallower approach and long landing.

114- What is the effect of alcohol consumption on functions of the body?

- A) Alcohol has an adverse effect, especially as altitude increases.
- B) Small amount of alcohol in the human system increases judgment and decision making abilities.
- C) Alcohol has little effect if followed by equal quantities of black coffee.
- D) Consuming alcohol causes to stimulate bodily functions and increase vigilance.

115- In the darkness, a stationary light will appear to move when stared at for a period of time. This illusion is known as:

- A) Somatogravic illusion.
- B) Ground lighting illusion.
- C) Autokinesis.
- D) Empty field myopia.

116- A person may not act as a crewmember of a civil aircraft if alcoholic beverages have been consumed by that person within the preceding:

- A) 8 hours.
- B) 12 hours.
- C) 24 hours.
- D) 36 hours.

117- What general statement is applicable for flying after you have had dental treatment?

- A) Flying within 48 hour of a minor dental procedure is not recommended.
- B) You should not fly after undergoing dental treatment without authorization from an aviation medical examiner.
- C) Because of the depressant effect of local anesthetics, you should not fly within 24 hours of a dental treatment.
- D) Most local anesthetics wear off shortly after treatment, but the dental procedure itself and the subsequent pain may preclude flight operations.

118- Due to the increased level of carbon monoxide in their bloodstreams, smokers are much more susceptible to the effects of:

- A) Hypoxia.
- B) Paranoia.
- C) Hyperventilation.
- D) Halluninations.

119- Two commonly used stimulant drugs that are not prohibited by ICAOs are and

- A) Alcohol , Drugs.
- B) Nicotine, Caffeine.
- C) Amphetamines, Caffeine.
- D) Drugs. Nicotine.

120- Antihistamines and decongestants are sometimes dangerous to use while flying because they cause:

- A) Restlessness.
- B) Anxiety.
- C) Panic.
- D) Drowsiness.

121- Motion sickness medications should not be used when you are pilot in an aircraft, because they often contain:

- A) Alcohol.
- B) Sedatives.
- C) Stimulants.
- D) Anticholinergics.

122- With reference to alcohol consumption and flying, ICAOs require that:

- A) 12 hours pass between drinking and flying.
- B) 12 hours pass between drinking and flying, and your blood alcohol level be 0.04% or less.
- C) Either 8 hours pass between drinking and flying, or your blood alcohol be less than 0.04%.
- D) 8 hour pass between drinking and flying, and your blood alcohol level be less than 0.04%.

123- The amount of oxygen absorbed into your bloodstream is reduced by:

- A) Caffeine.
- B) Alcohol.
- C) Non-alcohol beverage.
- D) Asprine.

124- The most widely and commonly used depressant drug is:

- A) Alcohol.
- B) Caffeine.
- C) Nicotine.
- D) Amphetamines.

125- The main effect of depressant drugs is to:

- A) Erode self-confidence.
- B) Stimulate bodily functions.
- C) Slow down bodily functions.
- D) Cause carbon monoxide poisoning at lower altitude.

126- After a dive requiring a decompression stop, scuba divers should wait at least hour before flying.

- A) 12
- B) 48
- C) 24
- D) 8

127- The method of relieving pressure on the eardrum by holding your nose and mouth closed and forcing air into the middle ear is referred to as the technique.

- A) Yawning.
- B) Swallowing.
- C) Valsalva.
- D) Chewing.

128- As you descend, the pressure in your ear canal and throat becomes than the pressure in your ear.

- A) Lower – inner
- B) Lower – middle
- C) Higher – inner
- D) Higher – middle

129- To overcome the symptoms of hyperventilation, you can:

- A) Breathe more oxygen.
- B) Monitor your flight instruments.
- C) Use over-the-counter medications.
- D) Slow your breathing rate, breathe into a bag or talk out loud.

130- Which condition would most likely result in hyperventilation?

- A) Excessive consumption of alcohol.
- B) Emotional tension, anxiety or fear.
- C) An extreme case of relaxation or sense of well-being.
- D) A very slow rate of breathing with insufficient oxygen intake.

131- Whenever you are replenishing an aircraft's oxygen system, always use oxygen.

- A) Environmental.
- B) Medical breathing.
- C) Aviator's breathing.
- D) All answers are correct.

132- When flying at night, you may experience symptoms of hypoxia as low as:

- A) 5,000 feet MSL.
- B) 10,000 feet MSL.
- C) 12,000 feet MSL.
- D) 14,000 feet MSL.

133- The part of the body that is unusually the first affected by oxygen deprivation is the:

- A) Pupil.
- B) Cones.
- C) Rods.
- D) Retina.

134- Vertigo caused by sunlight shining through a rotating propeller is called:

- A) Inversion Illusion.
- B) Leans.
- C) Coriolis illusion.
- D) Flicker vertigo.

135- During acceleration, if you experience the overwhelming sensation that you are in a nose-high attitude, even though you are in straight-and-level-flight, you are experiencing the:

- A) Coriolis illusion.
- B) Somatogravic illusion.
- C) Inversion sensation.
- D) False horizon illusion.

136- If you become spatially disoriented, you should:

- A) Reduce power and slow the aircraft.
- B) Concentrate on the flight instruments.
- C) Concentrate on visual cues outside the aircraft.
- D) Control the airplane by relying on your kinesthetic sense.

137- Spatial disorientation most commonly occurs during:

- A) Daylight hour.
- B) Periods of low visibility.
- C) Flight at high altitude and is related to hypoxia.
- D) Rapid acceleration or deceleration, regardless of the weather conditions.

138- Spatial disorientation will most likely occur if a pilot:

- A) Ignores the kinesthetic sense.
- B) Uses body signals to interpret flight attitude.
- C) Ignores the sensations of muscles and inner ear.
- D) Cross checks the instrument panel with eye movement.

139- Spatial disorientation may be defined as:

- A) A physiological illness of the inner ear.
- B) An incorrect mental image of where you are on the map.
- C) An incorrect mental image of your position, attitude or movement in space.
- D) An incorrect mental image caused exclusively by fatigue and anxiety.

140- The utricle and the saccule organs are responsible for the perception of

- A) Angular acceleration.
- B) Linear acceleration.
- C) G-loads.
- D) A & C are correct.

141- The sensory organ(s) in the inner ear responsible for vestibular sense is (are) the:

- A) Utricle.
- B) Saccule.
- C) Semicircular canals.
- D) Semicircular canals, vestibule (static organ).

142- The sense that we rely on most for orientation is sense.

- A) Vestibular.
- B) Kinesthetic.
- C) Visual.
- D) Saccule.

143- The primary sense(s) used in maintaining balance is (are) the:

- A) Visual.
- B) Vestibular.
- C) Kinesthetic.
- D) All answers are correct.

144- The cockpit light color that best preserves your dark adaptation is light.

- A) Green
- B) Yellow
- C) Red
- D) Blue

145- light severely distorts some colors, especially those found on aeronautical charts.

- A) Red
- B) Amber
- C) Green
- D) White

146- If you look directly at an object at night, you will see it?

- A) Less clearly because there are no as many cones as rods.
- B) Less clearly because the fovea is a night blind spot.
- C) More clearly because it is focused in the fovea.
- D) More clearly because rods see better in the dark.

147- A problem caused by the lack of visual references is known as:

- A) Autokinesis.
- B) Flicker vertigo.
- C) Empty field myopia.
- D) Somatogravic illusion.

148- The part of body which is responsible for the perception of linear acceleration is:

- A) Semicircular canals.
- B) Static organ.
- C) Kinesthetic sense.
- D) A and B are correct.

149- One of the most common types of spatial disorientation occurs when a rapid correction as made to a bank which may cause to reenter to the original attitude, is:

- A) Coriolis illusion.
- B) Graveyard spiral.
- C) Leans.
- D) Somatogravic illusion.

150- How a pilot generally can stop the leans?

- A) Recovering from a bank attitude abruptly.
- B) Maintaining a level attitude for two minutes.
- C) Lowering the nose abruptly.
- D) B and C are correct.

151- Which of the following factors increase susceptibility of spatial disorientation?

- A) Intake of alcohol or drugs.
- B) Heavy pilot workload and fatigue.
- C) Anxiety.
- D) All answers are correct.

152- An illusion created by an abrupt change from a climb to straight-and-level flight is:

- A) Graveyard spiral.
- B) Inversion illusion.
- C) Coriolis illusion.
- D) Leans.

153- Which statement is incorrect?

- A) False horizon can be generated by confusing bright stars and city lights.
- B) A false horizon can occur while flying toward the shore of an ocean or large lake at night.
- C) Flying above a sloping cloud deck produce illusion of false horizon.
- D) False horizon illusion is only dangerous when actual horizon and apparent horizon are not parallel.

154- Which statement is incorrect?

- A) Motion sickness is caused by the brain receiving conflicting message about the state of the body.
- B) The symptoms of motion sickness are general discomfort, paleness, vomiting, dizziness, nausea and sweating.
- C) Passengers are less susceptible to airsickness than pilots.
- D) Avoiding quick maneuvers, warm, turbulent air, using ear plug and calming down the stressful passenger can reduce the likelihood of airsickness.

155- Awareness of position obtained by the nerves in your skin, joints and muscles is called:

- A) Vestibular sense.
- B) Kinesthetic sense.
- C) Visual sense.
- D) A and B are correct.

156- A turn is detected by the canal in the inner ear.

- A) Lateral
- B) Horizontal
- C) Vertical
- D) Vestibule (static organ)

157- Which part of body is responsible for keeping the pressure equalized between the ear canal and middle ear?

- A) Throat.
- B) Eustachian tube.
- C) Sinuses.
- D) Cochlea.

158- Find the most common factors which cause the anemic hypoxia:

- 1) Cyanosis
- 2) Stomach ulcer
- 3) Diet deficiency
- 4) Blood donation
- 5) Excessive bleeding
- 6) Carbon monoxide poisoning

- A) 1,3,4,5,6
- B) 1,3,5,6
- C) 2,5,6
- D) 2,3,4,5,6

159- The following statements are true, except:

- A) Smoking three cigarettes during a night flight can dramatically reduce the sharpness of your vision.
- B) During rapid decompression at FL300 time of useful consciousness with moderate activity is 45 seconds.
- C) Hyperventilation cannot occur while breathing supplemental oxygen.
- D) The treatment for hyperventilation involves restoring the proper carbon dioxide level in the body.

160- Clearing your ears is difficult when you are into pressure.

- A) Less – descending – higher
- B) More – ascending – lower
- C) Less – ascending – higher
- D) More – descending – higher

161- When eustachian tube does not open during an ascent, the positive air pressure in the pushes the eardrum

- A) Ear canal – outward
- B) Middle ear – outward
- C) Ear canal – inward
- D) Middle ear – inward

162- Most passengers are aware of the pressure imbalance during descent. You can open the Eustachian by:

- A) Valsalva technique.
- B) Swallowing.
- C) Chewing and yawning.
- D) All answers are correct.

163- As a balloon climbs to 28,000 ft, atmospheric pressure decreases and the air within the balloon and volume

- A) Expands – tripled
- B) Compresses – doubled
- C) Expand – doubled
- D) Compresses – tripled

164- After consuming alcohol heart rate and blood pressure may while your central nervous system.

- A) Decrease - depressing
- B) Decrease - stimulating
- C) Increase – depressing
- D) Increase - stimulating

165- drugs generally excite the central nervous system and produce an increase in alertness and activity.

- A) Depressant
- B) Stimulant
- C) Tranquilizer
- D) Anesthetic

166- Which gas, which is absorbed by the body during normal breathing, plays an important role in decompression sickness?

- A) Nitrogen.
- B) Oxygen.
- C) Carbon Dioxide.
- D) Carbon Monoxide.

167- Which body system is responsible for distributing oxygen around the body?

- A) The Nervous System.
- B) The Circulatory System.
- C) The Respiratory System.
- D) The Oxidation System.

168- The blood carries around the body and removes from the body with the exchange occurring in the

- A) Carbon Dioxide / Oxygen / Veins.
- B) Oxygen / Carbon Dioxide / heart.
- C) Carbon Dioxide / Oxygen / Capillaries.
- D) Oxygen / Carbon Dioxide / Capillaries.

169- Enter into the following statement the most correct pair of gases from the options below. Hemoglobin in red blood cells is more readily attracted to than

- A) Nitrogen / Oxygen.
- B) Carbon Monoxide / Oxygen.
- C) Oxygen / Nitrogen.
- D) Carbon Dioxide / Nitrogen.

170- Which organ controls all other bodily functions?

- A) The brain.
- B) The heart.
- C) The lungs.
- D) The spinal cord.

171- Above what altitude do pilots need to breathe supplementary oxygen?

- A) 2,000 ft.
- B) 8,000 ft.
- C) 10,000 ft.
- D) 20,000 ft.

172- What is the component of the eye responsible for peripheral vision and sensitive to low light levels?

- A) The Rods.
- B) The Cones.
- C) The Fovea.
- D) The Retina.

173- Where is the blind spot?

- A) On the Iris.
- B) Where the optic nerve enters the Retina.
- C) On the Fovea.
- D) On the edge of the Lens.

174- When flying solo, a pilot who suspects he is suffering from spatial disorientation should:

- A) Blink rapidly several times.
- B) Swallow hard, pinch the nostrils and blow down the nose to clear the Eustachian tube.
- C) Believe the indications of instruments.
- D) Believe his somatosensory senses.

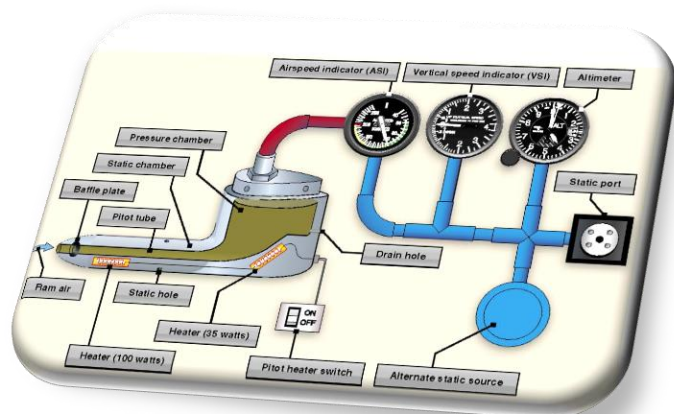
175- What is the most important sense for spatial orientation?

- A) Hearing and balance.
- B) Seat of the pants.
- C) Vision.
- D) All senses play their part in situational awareness.

Question	Answer	Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	C	41	A	81	C	121	B	161	B
2	B	42	A	82	A	122	D	162	D
3	D	43	B	83	B	123	B	163	A
4	A	44	C	84	B	124	A	164	C
5	B	45	C	85	B	125	C	165	B
6	C	46	C	86	D	126	C	166	A
7	C	47	C	87	A	127	C	167	B
8	C	48	D	88	B	128	D	168	D
9	D	49	D	89	A	129	D	169	B
10	A	50	C	90	C	130	B	170	A
11	B	51	B	91	A	131	C	171	C
12	B	52	D	92	D	132	A	172	A
13	C	53	B	93	A	133	D	173	B
14	C	54	D	94	A	134	D	174	C
15	C	55	C	95	D	135	B	175	C
16	D	56	C	96	B	136	B		
17	D	57	D	97	C	137	B		
18	A	58	D	98	B	138	B		
19	D	59	B	99	B	139	C		
20	A	60	A	100	C	140	B		
21	D	61	B	101	C	141	D		
22	A	62	C	102	A	142	C		
23	D	63	B	103	B	143	D		
24	C	64	A	104	B	144	C		
25	B	65	B	105	C	145	A		
26	A	66	A	106	C	146	B		
27	C	67	A	107	C	147	C		
28	D	68	B	108	A	148	B		
29	D	69	D	109	C	149	C		
30	D	70	A	110	B	150	B		
31	B	71	B	111	C	151	D		
32	D	72	B	112	A	152	B		
33	B	73	C	113	B	153	D		
34	C	74	A	114	A	154	C		
35	A	75	A	115	C	155	B		
36	C	76	B	116	A	156	A		
37	A	77	A	117	D	157	B		
38	A	78	A	118	A	158	D		
39	B	79	D	119	B	159	C		
40	C	80	D	120	D	160	D		

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Instrumentation



1- Which one of the following instrument operate based on differential pressure?

- A) Attitude indicator
- B) airspeed indicator
- C) Mach indicator
- D) B & C are correct

2- At which altitude the pressure decrease approximately more than half?

- A) 16,000'
- B) 15,000'
- C) 18,000'
- D) 12,000'

3- What is the value of standard pressure based on PSI at sea level?

- A) 14.7
- B) 2116
- C) 1013.2
- D) A & B are correct

4- Which one of the following statement is not correct?

- A) Warm air has less dense than cold air.
- B) Density varies with both temperature & pressure.
- C) Humidity affects the density of the air in higher degree.
- D) Humid air has less dense than dry air.

5- ISA condition is:

- A) 15°C- 29.92 hPa
- B) 59 °F- 29.92 In.Hg
- C) 59 °F- 2116 MB
- D) 15 °C- 1013.2 PSI

6- What is the standard temperature laps rate?

- A) 0°C per 1000'
- B) 1.1°C - 2.8°C per 1000'
- C) 45°F per 1000'
- D) 3.5°F per 1000'

7- Which instrument is based on pilot-static system?

- A) Altimeter
- B) VVI
- C) Mach indicator
- D) All answers are correct

8- Which one of the following instrument use ambient (static) pressure?

- A) Air speed indicator
- B) VVI
- C) Altimeter
- D) all answers are correct

9- Which one the following instrument is use pitot (dynamic) air pressure?

- A) Airspeed
- B) Altimeter
- C) VVI
- D) B & C are correct

10- What is the time for heading indicator reset against compass during straight and level unaccelerated flight?

- A) Every 20 minutes.
- B) Every 15 minutes.
- C) Every 10 minutes.
- D) Reset is not required in this case.

11- What is the correct indication of a turn coordinator when aircraft is parked?

- A) Ball centered, miniature aircraft center.
- B) Ball centered, miniature aircraft same direction of last turn.
- C) Ball opposite direction of the last turn, miniature aircraft the same.
- D) Ball same direction of the last turn, miniature aircraft opposite direction of last turn.

12- The airspeed indicator measures the difference between....

- A) Impact and ram air pressure.
- B) Static and ambient air pressure.
- C) Total and ambient air pressure.
- D) Pitot and ram air pressure.

13- What is the white color in airspeed indicator?

- A) Flap operating range.
- B) Normal operating range.
- C) Caution range speed.
- D) A & C are correct.

14- What is the stalling speed in specific configuration?

- A) V_{FE}
- B) V_{S1}
- C) V_{SO}
- D) V_{NO}

15- What is the color of normal operating range?

- A) White
- B) Red
- C) Yellow
- D) Green

16- Which of the following speed is marked by specific color in airspeed indicator?

- A) V_{S1}
- B) V_{LE}
- C) V_{LO}
- D) V_A

17- What is the maximum structure cursing speed?

- A) V_{FE}
- B) V_{NO}
- C) V_{LE}
- D) V_{NE}

18- What is the color and speed range of caution operation?

- A) $V_{NO} - V_{NE}$ - Green
- B) $V_{NO} - V_{NE}$ - Yellow
- C) $V_{S1} - V_{NO}$ - Yellow
- D) $V_{S1} - V_{NO}$ - Green

19- What is the maneuvering speed?

- A) V_{LE}
- B) V_{LO}
- C) V_{NO}
- D) V_A

20- In turbulence pilot shall use airspeed

- A) V_A or below
- B) above V_A
- C) L/D_{max} speed
- D) V_{NE}

21- What is the maximum speed for full and abrupt use of the control without risk of structural damage?

- A) V_{NO}
- B) V_{NE}
- C) V_A
- D) V_{FE}

22- What is the max landing gear operating airspeed?

- A) V_{LO}
- B) V_{LE}
- C) V_{LC}
- D) V_A

23- What is the maximum landing gear extended airspeed?

- A) V_A
- B) V_{LE}
- C) V_{LO}
- D) V_{LC}

24- The pilot shall adjust during landing gear retraction.

- A) V_A
- B) V_{LC}
- C) V_{LE}
- D) V_{LO}

25- When operating in aerodrome at sea level you maintain 70 kts in indicated airspeed for approaching to land, how would you adjust your indicated airspeed when operate at aerodrome with 8000' field elevation ISA condition?

- A) Increase airspeed
- B) Remain constant
- C) Decrease airspeed
- D) None

26- What is your indicated and ground speed in high elevation airport than sea level?

- A) Increase-increase
- B) Decrease-decrease
- C) Remain constant-increase
- D) Remain constant-decrease

27- The pilot can calculate calibrated airspeed by correcting indicated airspeed to:

- A) Installation error
- B) Compressibility
- C) Pressure & temp
- D) Friction

28- The pilot can calculate the actual speed of airplane by:

- A) CAS corrected by installation & position error
- B) IAS corrected by installation & position error
- C) CAS corrected by altitude & non-standard temperature
- D) IAS corrected by standard atmospheric condition & position error

29- What is the actual speed over ground?

- A) TAS
- B) EAS
- C) CAS
- D) G/S

30- What would be the TAS when altitude increase or temperature increase?

- A) Decrease
- B) Increase
- C) Decrease first then increase
- D) Remain constant

31- Air compressibility error use for determining equivalent airspeed when A/C operates:

- A) Above 200 kts
- B) Below 100 kts
- C) Training airplane
- D) Below 20,000'

32- Which airspeed read directly from the airspeed indicator?

- A) TAS
- B) CAS
- C) G/S
- D) IAS

33- The altimeter indicates flight altitude by measuring

- A) Pitot pressure
- B) Ambient air pressure
- C) Ram air pressure
- D) Impact air pressure

34- In altimeter the longest and mid-size hand shows....

- A) 1000'-100'
- B) 100'-10,000'
- C) 100'-1000'
- D) 1000'-10,000'

35- Shortest point of altimeter shows.....

- A) Ten-thousands of feet
- B) Thousands of feet
- C) Hundreds of feet
- D) None

36- What is the best way to minimize altimeter error?

- A) Set 29.92
- B) Update altimeter setting
- C) Descend slowly
- D) Ascend slowly

37- What does the pilot read when set QNH in flight?

- A) Indicated altitude
- B) Pressure altitude
- C) Absolute altitude
- D) True altitude

38- What does the pilot read when set the actual height from surface?

- A) True altitude
- B) Absolute altitude
- C) Indicated altitude
- D) Pressure altitude

39- What does the pilot read when set the actual height of mean sea level?

- A) Pressure altitude
- B) Indicated altitude
- C) Absolute altitude
- D) True altitude

40- What does the pilot read when set the standard pressure?

- A) Pressure altitude
- B) Indicated altitude
- C) Absolute altitude
- D) True altitude

41- When density altitude is equal to pressure altitude?

- A) In non-standard temperature
- B) Standard temperature
- C) Standard atmosphere
- D) Standard pressure

42- Density altitude is.....

- A) Pressure altitude corrected for non- standard temperature
- B) Indicated altitude corrected for non- standard temperature
- C) Absolute altitude corrected for non- standard temperature
- D) All answers are correct

43- What is the position of maneuvering speed on airspeed indicator?

- A) End of white arc.
- B) End of green arc.
- C) End of yellow arc.
- D) Not specified.

44- When the indicated and true altitude is same when the airplane is on the ground

- A) Warm area
- B) Set 29.92
- C) Set QNH
- D) Cold area

45- When the pressure altitude is lower than true altitude:

- A) Altimeter setting and temperature above than standard
- B) Altimeter setting or temperature below than standard
- C) Altimeter setting or temperature above than standard
- D) Altimeter setting and temperature below than standard

46- When the true altitude is lower than pressure altitude:

- A) Pressure setting and temperature below than standard
- B) Pressure setting or temperature below than standard
- C) Pressure setting or temperature above than standard
- D) Pressure setting and temperature above than standard

47- What is the sources of power for gyro operations?

- A) Attitude indicator (vacuum), heading indicator (electric).
- B) Attitude indicator (electric), heading indicator & turn and slip indicator (vacuum).
- C) Attitude indicator & turn and slip indicator (vacuum), heading indicator (electric).
- D) Attitude indicator & heading indicator (vacuum), turn and slip indicator (electric).

48- What is acceptable altitude error for altimeter in FAA?

- A) 85 ft.
- B) 55 ft.
- C) 75 ft.
- D) 70 ft.

49- When the pilot flying from high pressure to low pressure the true altitude is than indicated altitude.

- A) Lower
- B) Higher
- C) As same as
- D) None

50- When the pilot flying from low pressure to high pressure the true altitude is than indicated altitude:

- A) Lower
- B) As same as
- C) Lower first then higher
- D) Higher

51- When the pilot flying from hot area to cold area the indicate altitude is than true altitude.

- A) Higher
- B) Lower
- C) As same as
- D) None

52- When the pilot flying from cold area to warm area the indicted altitude is than true altitude.

- A) Higher
- B) Lower
- C) As same as
- D) None

53- Which instrument show how fast the ambient pressure increase or decrease?

- A) Altimeter
- B) Airspeed indicator
- C) VVI
- D) A & B & C are correct

54- Temperature has effect on

- A) Altimeter
- B) Airspeed indicator
- C) VVI
- D) Heading indicator

55- VVI is the instrument that shows

- A) Stabilized climb/descend
- B) Trend
- C) Rate after 6 to 12 sec
- D) B & C are correct

56- What is the immediate indication of VVI about change in pressure?

- A) Rate
- B) Trend
- C) Trend after 6 to 9 sec
- D) RPM

57- Which instrument is be unreliable when Pitot tube become clogged?

- A) Altimeter-VVI
- B) VVI-airspeed indicator
- C) Altimeter-airspeed indicator
- D) Only airspeed indicator

58- Which instrument may be unreliable when static port be clogged?

- A) Altimeter
- B) VVI
- C) Airspeed indicator
- D) All answers are correct

59- Which instrument does show zero when static port be clogged?

- A) VVI
- B) Altimeter
- C) Airspeed indicator
- D) All answers are correct

60- Which instrument will "freeze" if pitot static become clogged?

- A) VVI
- B) Altimeter
- C) Airspeed indicator
- D) A&C

61- What would be the airspeed indicator when Pitot tube & drain opening hole be clogged?

- A) Drop to zero
- B) Act as altimeter
- C) Act as VVI
- D) B & C are correct

62- What would be the airspeed indicator after pitot tube become clogged but drain opening hole be open?

- A) Act as altimeter
- B) Increase during descend
- C) Decrease during ascend
- D) Drop to zero

63- What is the change in airspeed indicator when static port be clogged but Pitot tube be open?

- A) Increase during descend
- B) Increase during ascend
- C) Decrease during descend
- D) Drop to zero

64- In non-pressurize airplane the main static port be clogged and the pitot use alternate static port, the airspeed, altimeter & VVI may be....

- A) Slower, higher, climb
- B) Greater, lower, descend
- C) Greater, higher, climb
- D) Slower, lower, descend

65- In pressurize airplane the main static port be clogged and the pitot use alternate static port, the airspeed, and VVI may be....

- A) Lower, climb
- B) Lower, descend
- C) Higher, climb
- D) Higher, descend

66- Which one of the following instrument is based on gyroscopic features?

- A) Attitude Indicator
- B) Direction gyro
- C) Turn- coordinator
- D) All answers are correct

67- Which part of pitot-static system supply total pressure?

- A) Drain opening hole
- B) Pitot tube
- C) Static port
- D) Pressure chamber

68- In which part of airplane, Pitot tube has been mounted?

- A) Cabin
- B) Above the flight deck
- C) Parallel to the thrust line
- D) Above horizontal stabilizer

69- In which phase of flight the difference between indicated and calibrated airspeed is greatest & lowest:

- A) Slow speed-cruising speed
- B) Slow speed-slow speed
- C) Cruising speed-slow speed
- D) Cruising speed-cruising speed

70- At high altitude the airplane must fly slightly ----- to obtain equivalent pressure on the Pitot tube as sea level.

- A) Slower
- B) Faster
- C) As same as
- D) Faster if you are flying below 10000 ft

71- The red line on an airspeed indicator means a maximum airspeed that:

- A) May be exceeded only if gear and flaps are retracted.
- B) May be exceeded if abrupt maneuvers are not attempted.
- C) May be exceeded only in smooth air.
- D) Should not be exceeded.

72- Which one is of following factor effect on V_A ?

- A) Angle of attack
- B) Weight
- C) Stall speed
- D) All answers are correct

73- The acceptable altimeter error must be within range of To check altimeter before flight:

- A) $\pm 75\text{m}$
- B) $\pm 75\text{ ft}$
- C) $\pm 25\text{ m}$
- D) $\pm 25\text{ ft}$

74- What would be the pilot read when airplane is stationary in parking area and set QFE?

- A) Cockpit height
- B) Zero
- C) Field elevation
- D) A & B are correct

75- What does altimeter show when airplane is on the ground and set QNH?

- A) Field elevation
- B) Zero
- C) Cockpit height
- D) B & C are correct

76- Temperature rise is made by air compressibility & friction of air in Rosemount probe.

- A) True
- B) False

77- When pilot flying from high pressure area to low pressure area without adjusting the correct altimeter setting the altimeter shows Than true altitude.

- A) Lower
- B) Higher
- C) As same as
- D) First lower then higher

78- Which features of gyroscopic cause to left turn tendency?

- A) Precession
- B) Rigidity in space
- C) A & B are correct
- D) None

79- Which one of the following statement is wrong?

- A) Rigidity is a spinning mass tend to remain in fix position.
- B) In precession the reaction to this force occur in the direction of rotation, approximately 90 ahead of point that force applied.
- C) Precession cause the error in some gyroscopic instrument.
- D) All answers are incorrect.

80- What is/are the source of gyroscopic instrument?

- A) Vacuum
- B) Electrical
- C) Pitot pressure
- D) A & B are correct

81- When suction pressure is too low which instrument does not provide reliable information?

- A) Heading-attitude
- B) Heading-altimeter
- C) Attitude-altimeter
- D) B & C are correct

82- What information sense by turn coordinator?

- A) roll-yaw
- B) yaw-bank
- C) Bank & roll
- D) roll & pitch

83- Turn coordinator rotate about and axis

- A) Vertical-lateral
- B) Lateral- longitudinal
- C) Vertical-longitudinal
- D) A & B are correct

84- What information does show by ball in turn coordinator?

- A) Bank angle
- B) Quantity of turn
- C) Quality of turn
- D) All answers are correct

85- Miniature and inclinometer of airplane show..... and.....

- A) Bank angle-coordinated flight
- B) Rate of turn- coordinated flight
- C) Rate of turn-bank angle
- D) Coordinated flight-bank angle

86- In standard rate turn the airplane make an orbit within:

- A) 30 sec
- B) 90 sec
- C) 60 sec
- D) 120 sec

87- How long does need to turn from heading 030° to heading 040° from left?

- A) 1 min 50 sec
- B) 1 min 57 sec
- C) 40 sec
- D) 2 min

88- How long does need to make turn from heading 360° to 180° by one-half standard coordinate turn?

- A) 1 min
- B) 2 min
- C) 30 sec
- D) 1 min 30 sec

89- The ball of inclinometer in turn coordinator is:

- A) Balance indicator
- B) Quality of turn
- C) Coordinate use of aileron & rudder
- D) All answers are correct

90- What is the position of turn coordinator's ball during level flight?

- A) Left side
- B) Right side
- C) Lowest part of tube
- D) A & B are correct

91- Slip is

- A) Rate of turn is too slow for bank angle
- B) Rate of turn is too great for bank angle
- C) Ball is in opposite direction of turn
- D) B & C are correct

92- Skid is

- A) Rate of turn is too slow for bank angle
- B) Rate of turn is too great for bank angle
- C) Ball is in opposite direction of turn
- D) B & C are correct

93- In flight the pilot encounter to slip condition, the pilot shall:

- A) Decrease bank angle
- B) Increase rudder
- C) Decrease weight
- D) All answers are correct

94- To correct skid, the pilot shall:

- A) Increase bank angle
- B) Increase rudder
- C) Increase weight
- D) All answers are correct

95- How can pilot correct ball in turn coordinator?

- A) By rudder
- B) By aileron
- C) By elevator
- D) B & C are correct

96- Inclinator can help to recognize torque and adverse yaw:

- A) True
- B) False

97- During climb which direction the ball move

- A) Left
- B) Right
- C) Lowest part
- D) A & C are correct

98- To centralize ball during climb the pilot shall:

- A) Apply left rudder
- B) Decrease bank angle
- C) Step on the ball
- D) Decrease RPM

99- The pitot system provides total pressure for:

- A) Airspeed indicator, vertical-speed indicator altimeter.
- B) Altimeter and vertical-speed indicator.
- C) Vertical-speed indicator.
- D) Airspeed indicator.

100- Which of the following color coded markings on the airspeed indicator identifies the never exceed speed?

- A) Lower A/S limit of the yellow arc.
- B) Upper A/S limit of the white arc.
- C) Upper A/S limit of the green arc.
- D) The red radial line.

101- Which color-coded marking identifies the power-off stalling speed in a specific configuration?

- A) Upper A/S limit of the green arc.
- B) Upper A/S limit of the white arc.
- C) Lower A/S limit of the green arc.
- D) Lower A/S limit of the white arc.

102- Which of the color coded markings identifies the normal flap operating range?

- A) The lower limit of the white arc to the upper limit of the green arc.
- B) The green arc
- C) The white arc.
- D) The yellow arc.

103- Which of the color coded markings identifies the power off stalling speed with wing flaps and landing gear in the landing configuration?

- A) Upper A/S limit of the green arc
- B) Upper A/S limit of the white arc.
- C) Lower A/S limit of the green arc.
- D) Lower A/S limit of the white arc.

104- What is an important airspeed limitation that is not color coded on airspeed indicators?

- A) Never exceed speed.
- B) Maximum structural cruising speed.
- C) Maneuvering speed.
- D) Maximum flaps extended speed.

105- Which instrument would be affected by excessively low pressure in the airplane's vacuum system?

- A) Heading indicator.
- B) Airspeed indicator.
- C) Pressure altimeter.
- D) Mach indicator

106- If a suction gage indicates the pressure to be lower than the minimum limit, which of these air operated instruments would be?

- A) Vertical velocity indicator.
- B) Airspeed indicator.
- C) Pressure altimeter.
- D) Attitude indicator.

107- Select the true statement related to the operations of a vertical speed indicator:

- A) A slightly climb indication on the instrument indicates a level flight attitude.
- B) A 5 to 10 second lag occurs before the pressure within the instrument is stabilized.
- C) Turbulent air cause needle fluctuations, resulting unreliable indications.
- D) The instrument automatically compensates for temperature changes.

108- Which of the following airspeeds is identified by color coding on an airspeed indicator?

- A) The maximum gear operating or extended speed.
- B) The maximum structural cruising speed.
- C) The maximum maneuvering cruising speed.
- D) The stalling speed for all altitudes and configurations.

109- What effect have an increase in temperature on true airspeed?

- A) Direct effect.
- B) Indirect effect.
- C) No change, because TAS increase only in low pressure.
- D) It depends on IAS and aircraft altitude.

110- Density altitude is the:

- A) Altitude reference to the standard datum plane.
- B) Pressure altitude corrected for nonstandard temperature.
- C) Altitude read directly from the altimeter.
- D) Altitude above the surface.

111- Under what condition is the indicated altitude the same as true altitude?

- A) If the altimeter has no mechanical error.
- B) At any level when standard temperature exist.
- C) When at 18000 ft with the altimeter set at 29.92".
- D) At any altitude if the indicated altitude is corrected for nonstandard sea level temperature and pressure.

112- As air density decreases, density altitude:

- A) Increases when the temperature decreases.
- B) Decreases when the temperature increases.
- C) Decreases.
- D) Increases.

113- Which principle of gyro does allow the turn coordinator gyro to sense rate of turn and rate of roll?

- A) Precision
- B) Rigidity
- C) A or B
- D) A and B

114- Total pressure from Pitot tube is directed to diaphragm inside the airspeed indicator:

- A) True
- B) False

115- Which of the following statement is correct?

- A) Air density increase by temperature increase.
- B) As the pressure increase, density altitude will be increase.
- C) Warm air is denser than cold air.
- D) Wind has a direct effect on total time.

116- Which of the following will occur If the indicated airspeed is constant and the density altitude increases?

- A) True airspeed will decrease, and groundspeed will increase.
- B) True airspeed will decrease, and groundspeed will decrease.
- C) True airspeed will increase, and groundspeed will decrease.
- D) True airspeed will increase, and groundspeed will increase.

117- What is the relationship between the density altitude and temperature?

- A) Direct.
- B) Indirect.
- C) It depends on atmospheric pressure.
- D) A & B are correct.

118- Which of the following items have greatest effect on air density?

- A) Humidity, Pressure, Dew point.
- B) Temperature, Pressure, Density altitude.
- C) Pressure, Density altitude, Humidity.
- D) Humidity, Temperature, Pressure.

119- Which factor has effect on stall speed?

- A) Airplane attitude.
- B) Airplane weight.
- C) Temperature.
- D) Atmospheric condition.

120- Pilots adjust their altimeter to the same altimeter setting because this:

- A) The elimination of altimeter error due to position of static source.
- B) The elimination of a need to make in-flight calculation of true altitude.
- C) Use for measuring true Mach number.
- D) To provide better vertical separation of aircraft.

121 - A sector distance is 450 NM long. The TAS is 460 kts. The wind component is 50 kts tailwind. What is the still air distance?

- A) 414 Nautical Air Miles (NAM).
- B) 499 Nautical Air Miles (NAM).
- C) 406 Nautical Air Miles (NAM).
- D) 511 Nautical Air Miles (NAM).

122 - An airplane flies at an airspeed of 380 kts, it flies from A to B and back to A. Distance AB is 480 NM. When going from A to B, it experiences a headwind component at 60 kts. The wind remains constant. The duration of the flight will be:

- A) 3 hrs. 00 min
- B) 2 hrs. 35 min
- C) 2 hrs. 10 min
- D) 2 hrs. 32 min

123 - On a flight from (47°10'N 010°00'E) to (49°10'N 010°00'E) at a TAS of 140 kts with a 20 kts headwind component, how many nautical air miles do you fly?

- A) 100
- B) 120
- C) 140
- D) 70

124- What is true altitude?

- A) Indicated altitude corrected for non-standard temperature.
- B) Actual height above terrain.
- C) Indicated altitude corrected for standard pressure.
- D) Actual height above mean sea level.

125- If the ambient temperature is warmer than standard at FL350. What is the density altitude compared to pressure altitude?

- A) Lower than pressure altitude.
- B) The same as the pressure altitude.
- C) Impossible to determine without information.
- D) Higher than pressure altitude.

126- How long will it take when A/C turn right from HDG 090° to 300° with standard rate turn?

- A) 60 Sec
- B) 50 Sec
- C) 70 Sec
- D) 90 Sec

127- As an airplane is rolled out of a 180° left turn to straight and level flight, on the attitude indicator the aircraft will be in a:

- A) Correct bank and climbing slightly
- B) Slight turn to the left and descending slightly
- C) Slight skid to the right and climbing slightly
- D) Slight slip to the left and descending slightly

128- Attitude indicator provide correct indication of pitch and bank during?

- A) 90 of turn
- B) 180 of turn
- C) 360 of turn
- D) 270 of turn

129 - How many feet you have to climb to reach FL075?

Given:

Departure aerodrome elevation:	1500 ft
QNH:	1023 hPa
Temperature:	ISA
1 hPa:	30 ft

- A) 6300 ft
- B) 6000 ft
- C) 6600 ft
- D) 7800 ft

130- When an altimeter setting is not available at a departure airport, the sensitive altimeter should be set to indicate:

- A) The elevation of the departure airport corrected to mean sea level.
- B) Pressure altitude corrected nonstandard temperature.
- C) The elevation of the departure airport.
- D) 29.92" hg.

131- A line connecting the point of zero degrees' variation is called:

- A) Isogonic's line.
- B) Agonic line.
- C) Deviation.
- D) Isoclinic.

132- Compass errors from magnetic dip due to:

- A) Lines of magnetic parallel to the surface of the earth.
- B) The curve magnetic fields deflect downward toward poles.
- C) Compass tilt limit.
- D) All answers are correct.

133- Compass acceleration and deceleration error is maximum at:

- A) North and south.
- B) East and west.
- C) North and west.
- D) East and south.

134- The magnetic compass:

- A) Is a dependent unit uses a little electric current.
- B) Is a unit called direction seeking instrument using generator magnetic field.
- C) Is a self-contained unit is independent of external vacuum and use magnetism.
- D) Is a reliable unit used for navigation in light airplanes and as a standby in modern jet airplanes.

135- In the northern hemisphere a magnetic compass will normally indicate a turn toward the north if:

- A) The aircraft is accelerated while on an east or west heading.
- B) The aircraft is decelerated while on an east or west heading.
- C) A right turn is entered from an east heading.
- D) A left turn is entered from a west heading.

136- In the Northern hemisphere, the magnetic compass will normally indicate a turn toward the south when:

- A) Left turn is entered from an east heading.
- B) A right turn is entered from a west heading.
- C) The aircraft is accelerated while on an east heading.
- D) The aircraft is decelerated while on a west heading.

137- In the Northern Hemisphere, a magnetic compass will normally, indicate initially a turn toward the west if:

- A) A left turn is entered from a north heading.
- B) A right Turn is entered from a north heading.
- C) An aircraft is decelerated while on a south heading.
- D) An aircraft is accelerated while on a north heading.

138- In the Northern hemisphere, a magnetic compass will normally indicate initially a turn toward the east if:

- A) An aircraft is decelerated while on a south heading.
- B) An aircraft is accelerated while on a north heading.
- C) A right turn is entered from a north heading.
- D) A left turn is entered from a north heading.

139- Which is true regarding a magnetic compass?

- A) Compass deviation is the angular difference between true north and magnetic north.
- B) Magnetic variation is the deflection of the compass needles which is caused by attractions in the airplane.
- C) Magnetic dip increases with an increase in latitude.
- D) The direction of turn error is the same in the world.

140- Which instrument would be affected by low pressure as indicated on the suction gage?

- A) Vertical velocity indicator.
- B) Airspeed indicator.
- C) Pressure altimeter.
- D) Attitude indicator.

141- If the static pressure ports iced over while descending from altitude, the airspeed indicator would read:

- A) Zero.
- B) Low.
- C) High.
- D) Correctly.

142- Assume an altimeter indicates an altitude of 3,500 ft MSL with an altimeter setting of 29.42" Hg. What is the approximate pressure altitude?

- A) 4,000 ft
- B) 3,550 ft
- C) 3,450 ft
- D) 3,000 ft

143- If the ram air input to the pitot head of the pitot system becomes blocked, and drain hole be open the indicated airspeed will generally:

- A) Decrease as altitude is increase.
- B) Remain unchanged.
- C) Increase as altitude is increase.
- D) Drop to zero.

144- If both the ram air input and the drain hole of the pitot system becomes blocked, the indicated airspeed will generally:

- A) Vary excessively during level flight when the actual airspeed is varied.
- B) Decrease during climbs.
- C) Not change during level flight
- D) Increase during descends.

145- Static pressure is not used for:

- A) Airspeed indicator.
- B) Altimeter.
- C) Attitude indicator.
- D) A & B are correct.

146- What indicates the beginning of white arc on airspeed indicator?

- A) Power off stall speed, in gear up and flaps up.
- B) Full power stall speed, in gear down and flaps up.
- C) Power off stall speed, in landing configuration.
- D) Power off stall speed, in gear down and flaps up.

147- What is the V_{S1} ?

- A) Power off stall speed in landing configuration.
- B) Full power stall speed, flaps up and gear up if equipped.
- C) Power off stall speed, flaps up and gear up if equipped.
- D) Full power stall speed, gear up and flaps down.

148- If a pilot changes the altimeter setting from 30.11" to 29.96". What is the approximate change in indication?

- A) Altimeter will indicate 15 ft higher
- B) Altimeter will indicate 15 ft lower
- C) Altimeter will indicate 150 ft lower
- D) Altimeter will indicate 150 ft higher

149- An altimeter is set to 29.84" Hg and the correct altimeter setting is 30.00" Hg. If under these conditions a landing is made at an airport where the field elevation is 772 ft the altimeter would indicate approximately:

- A) 932 ft
- B) 160 ft
- C) 612 ft
- D) 772 ft

150- Enroute at FL250 the altimeter is set correctly. On descent a pilot fails to reset it to a local altimeter setting of 30.57". If the field elevation is 650 ft and the altimeter is functioning properly what will it indicate after landing?

- A) Sea level
- B) 585 ft
- C) 715 ft
- D) 1,300ft

151- A direction gyro is corrected for accurate directional information using:

- A) Air data computer.
- B) Direct reading magnetic compass.
- C) Flight director.
- D) Flux valve.

152- The pressure measured at the forward facing orifice of a pitot head tube is the:

- A) Static pressure.
- B) Dynamic pressure.
- C) Total pressure plus static pressure.
- D) Total pressure.

153- In a non-pressurized aircraft, if one or several static pressure ports are damaged, there is an alternate emergency means for restoring a practically correct static pressure intake:

- A) Calculating the ambient static pressure, allowing for the altitude and QNH and adjusting the instruments.
- B) Descending as much as possible in order to fly at a pressure as close to 1.013,25 hPa as possible.
- C) Slightly opening a window to restore the ambient pressure in the cabin.
- D) Braking VVI glass window.

154- Given:

P_T = Total pressure

P_S = Static pressure

P_D = Dynamic pressure

- A) $P_D = P_T + P_S$
- B) $P_T = P_D + P_S$
- C) $P_S = P_T + P_D$
- D) $P_D = P_T / P_S$

155- If during a descent:

- The pneumatic altimeter reading is constant
- The VSI shows zero
- The IAS is increasing the most likely explanation is that
 - A) The static intakes are completely clogged up by ice.
 - B) The total pressure intake is completely clogged up by ice.
 - C) There is a leakage in the static pressure line.
 - D) The antenna of the radio altimeter is completely clogged up by ice.

156- The standard temperature for all aerodynamic computations is:

- A) 0°C or 32°F.
- B) 15°C or 59 °F.
- C) 273°K or 492°R.
- D) 0°F or 460 °R.

157- The QNH is by definition the value of the:

- A) Altimeter setting so that the needles of the altimeter indicate the altitude of the location for which it is given.
- B) Atmospheric pressure at the sea level of the location for which it is given.
- C) Altimeter setting so that the needles indicate zero when the aircraft is on ground at the location for which it is provided.
- D) Atmospheric pressure at the level of the ground overflown by the aircraft.

158- If the static source to an altimeter becomes blocked during a climb, the instrument will:

- A) Under-read by an amount equivalent to the reading at the time that the instrument became blocked.
- B) Continue to indicate the reading at which the blockage occurred.
- C) Over-read.
- D) Gradually return to zero.

159- On board an aircraft the altitude is measured from the:

- A) Density altitude.
- B) Pressure altitude.
- C) Temperature altitude.
- D) Standard altitude.

160- When flying from a sector of warm air into cold air the altimeter will:

- A) Be just as correct as before.
- B) Under-read.
- C) Over-read.
- D) Show the actual height above ground.

161- The altitude indicated on board an aircraft flying in an atmosphere where all atmosphere layers below the aircraft are warm is:

- A) Higher than the real altitude.
- B) Lower than the real altitude.
- C) Equal to the standard altitude.
- D) The same .as the real altitude.

162- The altimeter consists of one or several aneroid capsules located in a sealed casing. The pressures in the aneroid capsule (i) and casing (ii) are respectively:

- A) Static pressure; (ii) total pressure.
- B) Static pressure at time ; (ii) static pressure
- C) Total pressure; (ii) static pressure.
- D) Vacuum (or a very low pressure); (ii) static pressure.

163- An aircraft is flying at an indicated altitude of 16,000 ft The outside air temperature is - 30°C. What is the true altitude of the aircraft?

- A) 16,200 ft
- B) 15,200 ft
- C) 18,600 ft
- D) 13,500 ft

164- Due to its conception, the altimeter measures a:

- A) Temperature altitude.
- B) Density altitude.
- C) Pressure altitude.
- D) True altitude in flight.

165- The altimeter of your aircraft indicates 10,000 ft with a subscale setting of 1013.25 mb, OAT is +5°C. The pressure altitude of the aircraft is:

- A) 697 hPa
- B) 10,400 ft
- C) 9,600 ft
- D) 10,000 ft

166- The altimeter of your aircraft indicates 11,000 ft with a subscale setting of 1013.25 mb, The QNH is 1023 hPa. OAT is +3°C. The pressure altitude of the aircraft is:

- A) 10,260 ft
- B) 11,740 ft
- C) 11,000 ft
- D) 670 hPa

167- The altimeter of your aircraft indicates 12,000 ft with a subscale setting of 1013.25 mb, QNH is 999 hPa. The pressure altitude of the aircraft is:

- A) 644 hPa
- B) 11,580 ft
- C) 12,420 ft
- D) 12,000 ft

168- When flying in cold air (colder than standard atmosphere), indicated altitude is:

- A) Lower than the true altitude.
- B) The same as the true altitude.
- C) Higher than the true altitude.
- D) Equal to the standard altitude.

169- When flying in warm air (warmer than standard atmosphere), indicated altitude is:

- A) Higher than the true altitude.
- B) The same as the true altitude.
- C) Lower than the true altitude.
- D) Equal to the standard altitude.

170- What is density altitude?

- A) The pressure altitude corrected by environment temperature.
- B) Indicated altitude corrected for non-standard temperature.
- C) Temperature altitude.
- D) Pressure corrected.

171- Pressure altitude may be defined as:

- A) The lowest forecast regional pressure.
- B) Pressure measured in the standard atmosphere.
- C) Altitude indicated with QFE set on the altimeter.
- D) Altitude indicated with QNE set on the altimeter.

172- What is the effect on an altimeter reading if variations in static pressure occur near to the pressure source?

- A) A change in hysteresis error.
- B) A change in the instrument error.
- C) A change in the position error.
- D) A change in the compressibility error.

173- The altimeter is based upon the same principle as:

- A) The aneroid barometer.
- B) The hygrometer.
- C) The mercury barometer.
- D) The Bourdon tube manometer.

174- We are maintaining a constant flight level. That means:

- A) The altitude above sea level is constant.
- B) The outside air pressure is constant.
- C) The altitude is constant when the sea level pressure is constant.
- D) The outside air pressure is constant if the temperature remains constant.

175- The vertical speed indicator VSI is fed by:

- A) Differential pressure.
- B) Total pressure.
- C) Dynamic pressure.
- D) Static pressure.

176- A vertical speed indicator measures the difference between:

- A) The dynamic pressure and the static pressure.
- B) The total pressure and the static pressure.
- C) The total instantaneous pressure and the total pressure at a previous moment.
- D) The instantaneous static pressure and the static pressure at a previous moment.

177- If the static intakes are completely clogged up by ice during a climb the VSI shows:

- A) A descent if the outside static pressure is less than the pressure in the VSI gauge.
- B) Zero.
- C) A constant rate of climb, even if the aircraft is leveling out.
- D) An increasing rate of climb if the ambient static pressure decreases.

178- Within a temperature range of +50 °C and -20 °C the VSI is accurate to within limits of:

- A) ± 200 ft/min
- B) ± 0 ft/min
- C) ± 30 ft/min
- D) ± 300 ft/min

179- V_{FE} is the maximum speed:

- A) With the flaps extended.
- B) With the flaps retracted in landing position.
- C) At which the flaps can be operated in turbulence.
- D) With the flaps retracted in takeoff position.

180- A pitot blockage of both the ram air input and the drain hole with the static port open causes the airspeed indicator to:

- A) React like an altimeter.
- B) Read a little high.
- C) Read a little low.
- D) Freeze at zero.

181- In a standard atmosphere and at the sea level, the calibrated airspeed (CAS) is:

- A) Higher than the true airspeed (TAS).
- B) Independent of the true airspeed (TAS).
- C) Equal to the true airspeed (TAS).
- D) Lower than the true airspeed (TAS).

182- The calibrated airspeed (CAS) is obtained by applying to the indicated airspeed (IAS):

- A) An instrument and density correction.
- B) An antenna and compressibility correction.
- C) An instrument and position error correction.
- D) A compressibility and density correction.

183- With a pitot probe blocked due to ice buildup, the aircraft airspeed indicator will indicate in descent a:

- A) Decreasing speed.
- B) Constant speed.
- C) Increasing speed.
- D) Fluctuating speed.

184- For a constant calibrated airspeed (CAS) and a level flight, a fall in ambient temperature will result in a:

- A) Lower true airspeed (TAS) due to an increase in air density.
- B) Higher true airspeed (TAS) due to a decrease in air density.
- C) Higher true airspeed (TAS) due to an increase in air density.
- D) Lower true airspeed (TAS) due to a decrease in air density.

185- A leak in the pitot total pressure line of a non-pressurized aircraft to an airspeed indicator would cause it to:

- A) Over-read.
- B) Under-read.
- C) Indication will drop to zero.
- D) Freeze on the value it indicated at the time of failure.

186- An airspeed indicator displays:

- A) IAS
- B) EAS
- C) CAS
- D) TAS

187- Considering the relationship between CAS and EAS:

- A) EAS may be lower or greater than CAS, depending on density altitude.
- B) EAS is always greater or equal to CAS.
- C) EAS may be lower or greater than CAS, depending on pressure altitude.
- D) EAS is always lower than or equal to CAS.

188- During a climb, the total pressure probe of the airspeed indicator becomes blocked; if the pilot tries to maintain a constant indicated airspeed, the true airspeed:

- A) Increases until reaching V_{MO} .
- B) Decreases until reaching the stall speed.
- C) Decreases by 1% per 600 ft.
- D) Increases by 1% per 600 ft.

189- Equivalent airspeed (EAS) is obtained from calibrated airspeed (CAS) by correcting for the following errors:

- 1) Position
- 2) Compressibility
- 3) Instrument
- 4) Density

The combination regrouping all the correct statements is

- A) 2,4
- B) 4
- C) 2
- D) 1,2,3,4

190- Given:

P_T = Total pressure

P_S = Static pressure

P_D = Dynamic pressure

The airspeed indicator is fed by:

- A) $P_S - P_T$
- B) P_D
- C) $P_T - P_D$
- D) $P_D - P_S$

191- If an aircraft maintaining a constant CAS and flight level is flying from a warm air mass into colder air:

- A) IAS increases.
- B) TAS increases.
- C) TAS decreases.
- D) IAS decreases.

192- If Pitot tube becomes blocked during a descent, the airspeed indicator:

- A) Over-reads.
- B) Under-reads.
- C) Under-reads or over-reads, depending on the air density.
- D) Indicates a constant speed.

193- In the absence of position and instrument errors:

- A) IAS = EAS
- B) IAS = CAS
- C) CAS = EAS
- D) CAS = TAS

194- True airspeed (TAS) is obtained from calibrated airspeed (CAS) by correcting for the following errors:

- 1) Instrument
- 2) Compressibility
- 3) Position
- 4) Density Altitude

The combination regrouping all the correct statements is

- A) 2,4
- B) 2
- C) 4
- D) 1,2,3,4

195- With constant weight and configuration and regardless of an altitude an aircraft always takes off at the same:

- A) Indicated airspeed.
- B) Ground speed.
- C) True airspeed.
- D) Equivalent airspeed

196- With EAS and density altitude, we can deduce:

- A) CAS and TAS
- B) CAS
- C) TAS
- D) IAS

197- If indicated airspeed is corrected for a positive position error, the resulting calibrated airspeed will be:

- A) Lower.
- B) It will not be CAS but EAS.
- C) Higher.
- D) It will not be CAS but TAS.

198- Match ground speed (G/S) with the associated definition:

- A) Indicated airspeed corrected for installation and instrument errors.
- B) Calibrated airspeed corrected for altitude and nonstandard temperature.
- C) Actual speed of an aircraft over ground.
- D) The airspeed you read directly from airspeed indicator.

199- Variation is defined as the angle between:

- A) MN and CN.
- B) TN and CN.
- C) TN and MN.
- D) CN and the longitudinal axis of the aircraft.

200 - An aircraft is flying at an indicated altitude of 5000 ft where the OAT is -10°C . What is the aircraft's true altitude?

- A) 4750 ft
- B) 5260 ft
- C) 5120 ft
- D) 4600 ft

201- The fields affecting a magnetic compass originate from:

- 1) Magnetic masses
- 2) Ferrous metal masses
- 3) Nonferrous metal masses
- 4) Electrical currents

The combination of correct statements is:

- A) 1,2,3
- B) 1,2,4
- C) 1,2,3,4
- D) 1,3,4

202- A pilot wishes to turn left toward a southerly heading with 20° bank at a latitude of 20° North. Using a direct reading compass, in order to achieve this he must stop the turn on an approximate heading of:

- A) 190°
- B) 200°
- C) 170°
- D) 160°

203- A pilot wishes to turn right toward a northerly heading with 20° bank at a latitude of 40° North. Using a direct reading compass, in order to achieve this he must stop the turn on to an approximate heading of:

- A) 030°
- B) 350°
- C) 330°
- D) 010°

204- If an aircraft, fitted with a Direct Reading Magnetic Compass (DRMC), takes off on a westerly heading, in the northern hemisphere, the DRMC will indicate:

- A) A turn to the north.
- B) Oscillates about west.
- C) No turn.
- D) A turn to south.

205- During deceleration following a landing in a northerly direction, a magnetic compass made for the southern hemisphere Indicates:

- A) No apparent turn.
- B) An apparent turn to the east.
- C) An apparent turn to the west.
- D) A heading fluctuating about 360° .

206- You commence a rate turn from southeast to southwest, in the northern hemisphere. On what heading do you stop the turn?

- A) 215°
- B) 255°
- C) 225°
- D) 205°

207- In the building principle of a gyroscope, the best efficiency is obtained through the concentration of the mass:

- A) On the periphery and with a high rotation speed.
- B) Close to the axis and with a high rotation speed.
- C) On the periphery and with a low rotation speed.
- D) Close to the axis and with a low rotation speed.

208- Using a classic (air-driven) Artificial Horizon, the aircraft performs a right 270° turn at a constant angle of bank and rate of turn. The indication is:

- A) Nose up, too much bank.
- B) Nose up, not enough bank.
- C) Nose up, wings level.
- D) Bank and pitch correct.

209- When executing a turn by 90° at constant attitude and bank, a classic Artificial Horizon (air-driven) indicates:

- A) Nose up and correct angle of bank.
- B) Attitude and bank angle are correct.
- C) Nose up and bank angle too low.
- D) Nose up and bank angle too high.

210- The basic properties of a gyroscope are:

- 1) The gyros weight.
- 2) The rigidity in space.
- 3) The inertia.
- 4) The high RPM.
- 5) The precession.

The combination of correct statements is:

- A) 3,4
- B) 2,5
- C) 2,3,5
- D) 1,3,5

211- Rigidity in a gyroscope is:

- A) A way to express the stability of the inner and out gimbal rings.
- B) To what extremes the flight attitudes might be before the gyro topples.
- C) The reaction 90° in the direction of rotation when applying force to the spinning wheel.
- D) The tendency it has to remain in its plane of rotation and resist attempts to alter its position.

212- Precession in a gyroscope is:

- A) The tendency it has to remain in its plane of rotation.
- B) A caging device.
- C) The angular limits to which the gimbals may travel before the gyro topples and the indication becomes useless.
- D) The reaction at 90° in direction of rotation caused by a applied force to the spinning wheel.

213- How is vacuum provided for the air driven gyro instruments?

- A) By the static tube.
- B) By an engine-driven pump.
- C) By the static vent.
- D) All answers are correct.

214- A turn indicator is an instrument which indicates rate of turn. Rate of turn depends upon:

- 1) Bank angle
- 2) Airplane speed
- 3) Airplane weight

The combination regrouping the correct statements is:

- A) 2,3
- B) 1,2,3
- C) 1,2
- D) 1,3

215- An aircraft is flying at a 120 kts TAS. In order to achieve a Rate 1 turn, the pilot will have to bank the aircraft at an angle of:

- A) 30°
- B) 12°
- C) 36°
- D) 19°

216- On the ground, during a right turn, the turn indicator indicates:

- A) Needle to the right, ball to left.
- B) Needle to the right, ball to right.
- C) Needle in the middle, ball to right.
- D) Needle in the middle, ball to left.

217- If the needle and the ball of a Turn and Slip indicator both show right, what does it indicate?

- A) Turn to left and too much bank.
- B) Turn to right and too much bank.
- C) Turn to left and too little bank.
- D) turn to right and too little bank

218- On a turn and slip indicator, needle to the left and ball to the right indicates:

- A) Turn to the right, not enough bank.
- B) Turn to the left, too much bank.
- C) Turn to the left, not enough bank.
- D) Turn to the right, too much bank.

219- In a turn at constant angle of bank, the rate of turn is:

- A) Independent of weight and proportional to TAS.
- B) Dependent on weight and inversely proportional to TAS.
- C) Independent of weight and inversely proportional to TAS.
- D) Dependent on weight and proportional to TAS.

220- During an acceleration phase at constant attitude, the resetting principle of the artificial horizon results in the horizon bar indicating a:

- A) Constant attitude.
- B) Nose-down attitude.
- C) Nose-up attitude.
- D) Nose-down followed by a nose-up attitude.

221- Following 180° stabilized turn with a constant attitude and bank, the artificial horizon (air-driven) indicates:

- A) Too high pitch-up and too low banking.
- B) Too high pitch-up and correct banking.
- C) Attitude and banking correct.
- D) Too high pitch up and too high banking.

222- Consider the following statements on longitude:

- A) Longitude is stated in degrees up to 360° .
- B) The value of longitude will never exceed 90° .
- C) The largest value of longitude is 180° .
- D) The largest value of change of longitude is 90° .

223- The prime meridian is:

- A) The meridian having the highest value of longitude.
- B) The meridian 180° E/W.
- C) The middle meridian on a chart.
- D) The meridian running through Greenwich, England.

224- Consider the following statements on magnetic variation:

- A) Variation will never exceed 90° .
- B) Variation will always increase when the total strength of the terrestrial magnetic field increases.
- C) The variation is east when True North seems to be located west of Magnetic North.
- D) The largest values of variation are found along the anti-meridians of the magnetic poles.

225- At the magnetic equator:

- A) Dip is zero.
- B) Variation is zero.
- C) Deviation is zero.
- D) The isogonic is an agonic line.

226- If the True HDG is 165° and the variation is -3° what is the magnetic heading?

- A) Variation is negative (Westerly), therefore magnetic heading is 168° .
- B) Variation is negative (Westerly), therefore magnetic heading is 162° .
- C) Variation is negative (Easterly), therefore magnetic heading is 162° .
- D) Variation is negative (Easterly), therefore magnetic heading is 168° .

227- A negative (westerly) magnetic variation signifies that:

- A) True North is East of Magnetic North.
- B) True North is West of Magnetic North.
- C) Compass North is East of Magnetic North.
- D) Compass North is West of Magnetic North.

228- A magnetic compass will be most effective at:

- A) A position roughly half way between the magnetic poles.
- B) The South magnetic pole.
- C) The North magnetic pole.
- D) The magnetic equator.

229- What is the ISA temperature value at FL330?

- A) -56°C
- B) -66°C
- C) -81°C
- D) -51°C

230- If the CH = 220° , Variation = 12°E , Deviation = 02°W what is the corresponding TH?

- A) TH = 234°
- B) TH = 206°
- C) TH = 230°
- D) TH = 210°

231- An Isogonic is a line:

- A) Running through all positions having the same magnetic Inclination.
- B) Running through all positions having the same magnetic longitude.
- C) On the surface of the Earth, running through all positions having the same magnetic latitude.
- D) Running through all positions having the same variation.

232- The value of variation:

- A) Is zero at the mid-latitude.
- B) Has a maximum value of 180° .
- C) Has a maximum value of 45°E or 45°W .
- D) Cannot exceed 90° .

233- If compass HDG is 340° and deviation $+3^{\circ}$, what is magnetic heading?

- A) Deviation is positive (Easterly), therefore magnetic heading is 343° .
- B) Deviation is positive (Westerly), therefore magnetic heading is 343° .
- C) Deviation is positive (Easterly), therefore magnetic heading is 337° .
- D) Deviation is positive (Westerly), therefore magnetic heading is 337° .

234- The deviation of a compass is described as $+4^{\circ}$. This means that:

- A) The deviation may be described as westerly.
- B) Compass heading will always be different by 4 degrees from true heading.
- C) The compass heading will have a lower number in degrees than the magnetic heading.
- D) The compass needle seems to be pointing at a pole located west of the magnetic pole.

235- Given:

True Track: 352°
 Variation: 11° W
 Deviation: -5°
 Drift: 10° R

What is heading?

- A) 078° (C)
- B) 346° (C)
- C) 358° (C)
- D) 025° (C)

236- An agonic line is a line that connects:

- A) Positions that have the same variation.
- B) Positions that have 0° variation.
- C) Points of equal magnetic dip.
- D) Points of equal magnetic horizontal field strength.

237- Given:

Variation: 7°W
 Deviation: 4°E

If the aircraft is flying a compass heading of 270°, the true and magnetic headings are:

- A) 274°(T); 267°(M).
- B) 267°(T); 274°(M).
- C) 277° (T); 281°(M).
- D) 263°(T); 259°(M).

238- Given:

True track: 245°
 Drift: 5°right
 Variation: 3°E
 Compass HDG: 242°

Calculate the magnetic heading.

- A) 247°
- B) 243°
- C) 237°
- D) 253°

239- What is the value of magnetic dip at the south magnetic pole?

- A) 360°
- B) 180°
- C) 90°
- D) 0°

240- What is the maximum possible value of dip angle?

- A) 66°
- B) 180°
- C) 90°
- D) 45°

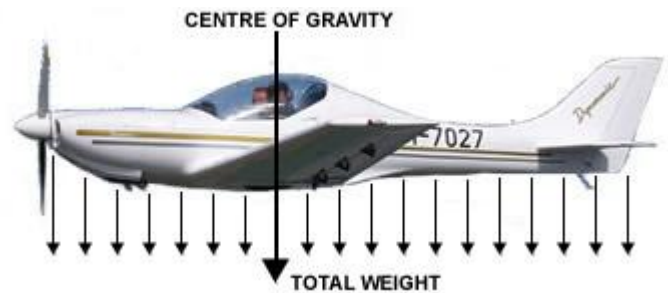
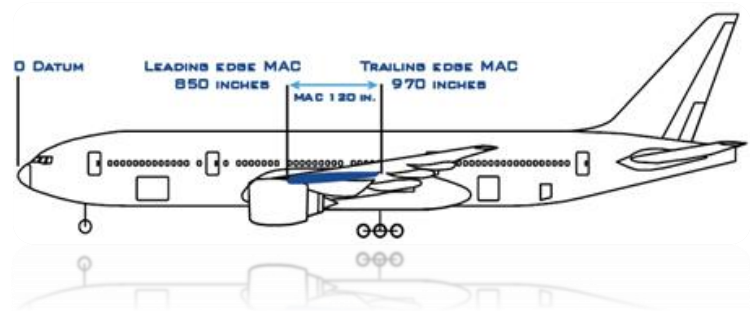
Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	D	36	B	71	D	106	D
2	C	37	A	72	B	107	C
3	A	38	B	73	B	108	B
4	C	39	D	74	D	109	A
5	B	40	A	75	A	110	B
6	D	41	B	76	A	111	B
7	D	42	A	77	B	112	D
8	D	43	D	78	A	113	A
9	A	44	C	79	D	114	A
10	B	45	A	80	D	115	D
11	A	46	A	81	A	116	D
12	C	47	D	82	A	117	A
13	A	48	C	83	C	118	D
14	B	49	A	84	C	119	B
15	D	50	D	85	B	120	D
16	A	51	A	86	D	121	C
17	B	52	B	87	B	122	B
18	B	53	C	88	B	123	C
19	D	54	C	89	D	124	A
20	A	55	D	90	C	125	D
21	C	56	B	91	A	126	C
22	A	57	D	92	D	127	A
23	B	58	D	93	A	128	C
24	D	59	A	94	A	129	A
25	B	60	B	95	A	130	C
26	C	61	B	96	A	131	B
27	A	62	D	97	B	132	B
28	C	63	A	98	C	133	B
29	D	64	C	99	D	134	C
30	B	65	B	100	D	135	A
31	A	66	D	101	C	136	D
32	D	67	B	102	C	137	B
33	B	68	C	103	D	138	D
34	C	69	A	104	C	139	C
35	A	70	B	105	A	140	D

Question	Answer	Question	Answer	Question	Answer	Question	Answer
141	C	176	D	211	D		
142	A	177	B	212	D		
143	D	178	A	213	B		
144	C	179	A	214	C		
145	C	180	A	215	D		
146	C	181	C	216	A		
147	C	182	C	217	B		
148	C	183	A	218	C		
149	C	184	A	219	C		
150	A	185	B	220	C		
151	B	186	A	221	B		
152	D	187	D	222	C		
153	D	188	B	223	D		
154	B	189	C	224	C		
155	A	190	B	225	A		
156	B	191	C	226	A		
157	A	192	B	227	A		
158	B	193	B	228	D		
159	B	194	A	229	D		
160	C	195	A	230	C		
161	B	196	C	231	D		
162	D	197	A	232	B		
163	B	198	C	233	A		
164	C	199	C	234	C		
165	D	200	A	235	C		
166	C	201	B	236	B		
167	D	202	D	237	B		
168	C	203	C	238	C		
169	C	204	A	239	C		
170	A	205	A	240	C		
171	D	206	B				
172	C	207	A				
173	A	208	A				
174	B	209	C				
175	D	210	B				



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Mass And Balance



1- How far will the CG shift if 750 pounds of cargo are moved from the aft compartment to the forward compartment?

Airplane gross weight 160,000 pounds
CG prior to shift 945 in aft of datum
Arm of FWD compartment 660 in aft of datum
Arm of AFT compartment 1,194 in aft of datum

- A) 3.2 inches
- B) 2.5 inches
- C) 2.0 inches
- D) 1.5 inches

2- Determine the maximum allowable load which may be carried in a cargo compartment on a pallet 85 by 68 inches:

Floor load limit 123 lbs/sq ft
Pallet weight 67 lbs
Tie down devices 27 lbs

- A) 4,765 lbs
- B) 4,843 lbs
- C) 5,674 lbs
- D) 4,932 lbs

3- What is the maximum allowable load which may be carried in a cargo compartment which has a floor load limit of 182 lbs/square foot?

Pallet size 102 in x 95 in
Pallet weight 93 lbs
Tie down devices 49 lbs

- A) 12,284 pounds
- B) 12,390 pounds
- C) 12,106 pounds
- D) 12,068 pounds

4- Determine the maximum allowable load which may be carried on a pallet that has dimensions of 73 by 59 inches:

Floor load limit 177 lbs/sq. ft.
Pallet weight..... 82 lbs
Tie down devices 45 lbs

- A) 5,165 pounds
- B) 5,375 pounds
- C) 5,292 pounds
- D) 5,208 pounds

5- What is the maximum allowable load which may be carried on a pallet 75 x 75 inches in a cargo compartment that has a floor load limit of 175 lbs/square foot?

Pallet weight 87 lbs

Tie down devices 35 lbs

- A) 6,958 pounds
- B) 6,835 pounds
- C) 6,748 pounds
- D) 6,713 pounds

6- Given:

Aircraft weight 2,800 lbs

CG 40" aft of datum

If 80 lbs of weight are added at 80" aft of datum the new CG will be:

- A) 42.5" aft of datum
- B) 37.6" aft of datum
- C) 38.9" aft of datum
- D) 41.1" aft of datum

7- An airplane with a gross weight of 185,500 lbs has the CG located at 980 inches aft of datum. The arm of the forward hold is 440 inches and aft cargo hold is 1,150 inches if 600 lbs of cargo are shifted from the aft hold to the forward hold. How far will the CG shift forward?

- A) 1.27 inches
- B) 2.29 inches
- C) 3.00 inches
- D) 3.56 inches

8- An airplane's gross weight is 170,500 lbs and the CG is located at 980 inches aft of datum. The arm of the forward cargo hold is 430 inches and the arm of the aft cargo hold is 1,130 inches if 800 lbs of cargo are shifted from the forward hold to the aft hold. How far will the CG shift aft?

- A) 4.01 inches
- B) 3.28 inches
- C) 2.38 inches
- D) 1.87 inches

9- How far will the CG shift if 1,000 lbs of cargo are moved from the aft compartment to the forward compartment?

Airplane gross weight 155,000 lbs

CG prior to shift 1,000" aft of datum

Arm of FWD compartment 570" aft of datum

Arm of Aft compartment 1,166" aft of datum

- A) 3.8 inches
- B) 2.5 inches
- C) 2.0 inches
- D) 1.5 inches

10- What is the new CG location if 800 lbs of cargo are moved from the forward cargo hold to the aft cargo hold?

Airplane gross weight 150,000 lbs
CG prior to shift 998.0" aft of datum
Arm of FWD compartment 667.0" aft of datum
Arm of Aft compartment 1,160" aft of datum

- A) 1,003.5 inches
- B) 1,000.6 inches
- C) 996.0 inches
- D) 994.8 inches

11- What is the new CG location if 1,000 lbs of cargo are moved from the aft compartment to the forward compartment?

Airplane gross weight 155,000 lbs
CG prior to shift 1,000" aft of datum
Arm of FWD compartment 670" aft of datum
Arm of Aft compartment 1,166" aft of datum

- A) 998.5 inches
- B) 998.0 inches
- C) 997.5 inches
- D) 996.8 inches

12- What is the maximum allowable cargo weight that may be carried on a pallet which has dimensions of 83x95 inches?

Floor load limit..... 169 lbs/sq ft
Pallet weight 88 lbs
Tie down devices..... 37 lbs

- A) 9,128 lbs
- B) 9,156 lbs
- C) 9,244 lbs
- D) 9,369 lbs

13- What is the maximum allowable cargo weight that may be carried on a pallet which has dimensions of 76 x76 inches?

Floor load limit..... 184 lbs/sq ft
Pallet weight 85 lbs
Tie down devices..... 36 lbs

- A) 7,499 lbs
- B) 7,373 lbs
- C) 7,292 lbs
- D) 7,259 lbs

14- What is the maximum allowable cargo weight that may be carried on a pallet which has dimensions of 72 x 72 inches?

Floor load limit 179 lbs/sq ft

Pallet weight 91 lbs

Tie down devices 36 lbs

A) 6,571 lbs

B) 6,444 lbs

C) 6,353 lbs

D) 6,317 lbs

15- What is the maximum allowable cargo weight that may be carried on a pallet which has dimensions of 84 x 76 inches?

Floor load limit 184 lbs/sq ft

Pallet weight 77 lbs

Tie down devices 31 lbs

A) 8,049 lbs

B) 8,074 lbs

C) 8,151 lbs

D) 8,259 lbs

16- What is the maximum allowable cargo weight that may be carried on a pallet which has dimensions of 72 x 84 inches?

Floor load limit..... 177 lbs/sq ft

Pallet weight 87 lbs

Tie down devices 29 lbs

A) 7,550 lbs

B) 7,434 lbs

C) 7,347 lbs

D) 7,318 lbs

17- What is the maximum allowable cargo weight that may be carried on a pallet which has dimensions of 70x70 inches?

Floor load limit 173 lbs/sq ft

Pallet weight..... 79 lbs

Tie down devices 35 lbs

A) 5,772 lbs

B) 5,807 lbs

C) 5,886 lbs

D) 6,000 lbs

18- Given:

Weight D 160 lbs at 45" aft of datum

Weight E 170 lbs at 145" aft of datum

Weight F 150 lbs at 185" aft of datum

Based on this information where would the CG be located?

- A) 86.0" aft of datum
- B) 117.8" aft of datum
- C) 124.2" aft of datum
- D) 136.7" aft of datum

19- Given:

Weight X 130 lbs at 17" aft of datum

Weight Y 110 lbs at 110" aft of datum

Weight Z 75 lbs at 210" aft of datum

Based on this information the CG would be located how far aft of datum?

- A) 89.1"
- B) 95.4"
- C) 106.9"
- D) 112.3"

20- Given:

Weight A 120 lbs at 15" aft of datum

Weight B 200 lbs at 117" aft of datum

Weight C 75 lbs at 195" aft of datum

Based on this information the CG would be located how far aft of datum?

- A) 82.0"
- B) 109.0"
- C) 121.7"
- D) 100.8"

21- Given:

Weight A 165 lbs at 135" aft of datum

Weight B 125 lbs at 115" aft of datum

Weight C 75 lbs at 85" aft of datum

The CG for the combined weights would be located how far aft of datum?

- A) 91.7"
- B) 111.6"
- C) 117.8"
- D) 128.4"

22- An aircraft loaded with a ramp weight of 3,550 pounds and having a CG of 95.0" approximately how much baggage would have to be moved from the rear baggage area at station 179" to the forward baggage area at station 42", in order to move the CG to 92.0"?

- A) 55 pounds
- B) 62 pounds
- C) 78 pounds
- D) 85 pounds

23- Your airplane is loaded to a gross weight of 5,000 pounds with three pieces of luggage in the rear baggage compartment. The CG is 98" aft of datum which is 2" aft of limits. If you move two pieces of luggage which together weight 100 pounds from the rear baggage compartment (145" aft of datum) to the front compartment (45" aft of datum) what is the new CG?

- A) 95.8" aft of datum
- B) 96.0" aft of datum
- C) 96.5' aft of datum
- D) 97.0" aft of datum

24- Given:

Total weight	4,037 lbs
CG location	station 67.8"
Fuel consumption	14.7 GPH
Fuel CG	station 68.0"

After 1 hour 45 minutes of flight time the CG would be located at station:

- A) 67.79"
- B) 68.79"
- C) 69.78"
- D) 70.78"

25- An airplane is loaded as follows 80 lbs at 200 inches aft of datum, 160 lbs at 90 inches aft of datum and 240 lbs at 60 inches aft of datum. Where would be the CG location?

- A) 128 inches aft of datum
- B) 93.3 inches aft of datum
- C) 12.8 inches aft of datum
- D) 9.3 inches aft of datum

26- Based on this information: the CG would be located how far aft of Datum?

Weight A.	115 lbs at 17" aft of datum.
Weight B.	220 lbs at 118" aft of datum.
Weight C.	8 lbs at 210" aft of datum.

- A) 85.7 inches
- B) 121.9 inches
- C) 86.28 inches
- D) 82.48 inches

27- Based on this information: the CG would be located at:

Weight D.	145 lbs at 46" aft of datum.
Weight E.	197 lbs at 134" aft of datum.
Weight F.	103 lbs at 206" aft of datum.

- A) 115.2 inches
- B) 122 inches
- C) 140.6 inches
- D) 135.1 inches

28- What is the max load that could be added to station 140" without exceeding the aft CG limit?

Aircraft weight	6500 lbs
CG location	station 89"
Aft CG limit	station 89.5"

- A) 63.7 pounds
- B) 64.3 pounds
- C) 53.3 pounds
- D) 54.7 pounds

29- Could 120 pounds of weight be shifted from station 30.0 to station 110.0 without exceeding the aft CG limit?

Total weight	4850 lbs
CG location	station 116.0
Aft CG limit	station 118.0

- A) Yes, the CG would be located at station 116.19".
- B) No, the CG would be located at station 118.15".
- C) Yes, the CG would be located at station 117.97".
- D) No, the CG would be located at station 118.97".

30- Could 100 pounds of weight be shifted from station 140.0" to station 30" without exceeding the forward CG limit?

Aircraft weight	3,650 lbs
CG Location	St.115.0"
Forward CG limit	St.112.0"

- A) No, the new CG would be located at 111.98".
- B) No, the new CG would be located at 101.98".
- C) Yes, the new CG would be located at 112.01".
- D) Yes, the new CG would be located at 112.98".

31- What is the maximum weight that could be shifted from station 45.0" to station 145.0" without exceeding the Aft CG limit?

Total weight 4200 lbs
CG location station 70.0"
Aft CG limit station 72.5"

- A) 105 pounds.
- B) 145 pounds
- C) 200 pounds.
- D) 130 pounds.

32- What is the new CG if 240 pounds of weight shift from station 182.0" to station 73.0"?

Total weight 8500 lbs
CG location station 121"

- A) 117.9"
- B) 124.1"
- C) 118.5"
- D) 119.7"

33- If 225 pounds of weight be shifted from station 64.0" to station 172.0" the CG would be at:

Total weight 10,340 lbs
CG prior to shift station 110.0"

- A) 107.65"
- B) 112.35"
- C) 108.65"
- D) 120.35"

34- What will be the new CG, if 180 pounds of weight shift from station 160.0" to station 60.0"?

Aircraft gross weight 7200 lbs
CG prior to shift station 90"

- A) 92.50"
- B) 88.75"
- C) 87.50"
- D) 91.75"

35- Where would the CG be located, if 175 pounds of weight shift from station 62.0" to station 157.0"?

Aircraft gross weight 8300 lbs
CG prior to shift station 96.0"

- A) 97.74"
- B) 97.28"
- C) 98.0"
- D) 98.98"

36- What load must be shifted from station 30.0" to station 130.0" to place CG at station 108.0"?

Aircraft weight 6530 lbs
CG location station 107.0"

- A) 653 pounds.
- B) 65 pounds.
- C) 57.1 pounds.
- D) 571 pounds.

37- How much weight must shift from station 133.0" to station 37.0" to put CG at station 90.0"?

Total weight 5600 lbs
CG location station 90.5"

- A) 58.3 pounds
- B) 52.8 pounds
- C) 29.1 pounds
- D) 22.7 pounds

38- What load must be shifted from station 160.0" to station 70.0" to shift CG 0.5 inch forward?

Total weight 7400 lbs
CG location station 89.0"

- A) 41.1 pounds
- B) 52.1 pounds
- C) 97.4 pounds
- D) 61.1 pounds

39- How much weight must shift from station 95.0" to station 214.0" to place CG at station 130.0"?

Aircraft weight 8700 lbs
CG prior to shift station 129.0"

- A) 73.1 pounds
- B) 103.5 pounds
- C) 102.3 pounds
- D) 83.5 pounds

40- Where would the CG be located, if 120 pounds of weight be added to station 59.0"?

Total weight 2800 lbs
CG location station 79.0"

- A) 78.31"
- B) 79.85"
- C) 78.17"
- D) 79.31"

41- What would be the new CG if 170 pounds of weight be added to station 160.0"?

Aircraft weight 2130 lbs
CG location station 82.0"
A) 87.76"
B) 84.88"
C) 88.42"
D) 85.88"

42- Where would the CG be located if 60 pounds of weight be added to station 139.0"?

Total weight 1225 lbs
CG location station 84.0"
A) 81.30"
B) 86.56"
C) 84.56"
D) 80.30"

43- What would be the new CG if 70 pounds of weight were added to station 60.0"?

Aircraft weight 1450 lbs
CG location station 82.0"
A) 83.01"
B) 82.91"
C) 80.98"
D) 81.18"

44- What load must be removed from station 30.0" to place CG at station 90.0"?

Aircraft weight 6900 lbs
CG location station 89.0"
A) 117.1 pounds.
B) 115 pounds.
C) 113.1 pounds.
D) 105 pounds.

45- How much weight must be removed from station 130.0" to place CG at station 89.0"?

Total weight 5100 lbs
CG location station 90.0"
A) 124.4 pounds
B) 122.2 pounds
C) 127.5 pounds
D) 128.2 pounds

46- What load must be removed from station 73.0" to place CG at station 142.0"?

Total weight 3300 lbs
CG location station 141.5"

- A) 54.3 lbs
- B) 47.8 lbs
- C) 23.9 lbs
- D) 38.2 lbs

47- How much load must be removed from station 160.0" to place CG at station 80.5"?

Total weight 2900 lbs
CG location station 81.0"

- A) 18.2 pounds.
- B) 53.2 pounds.
- C) 36 pounds.
- D) 48 pounds.

48- What would be the new CG location if 70 pounds of weight were removed from station 107"?

Total weight 1760 lbs
CG location station 102"

- A) 101.19"
- B) 101.80"
- C) 107.20"
- D) 107.30"

49- What would be the new CG location if 120 pounds of weight were removed from station 150"?

Total weight 2800 lbs
CG location station 103"

- A) 100.06"
- B) 102.06"
- C) 100.89"
- D) 101.89"

50- What is the location of CG if 60 pounds of weight are removed from station 70"?

Total weight 3420 lbs
CG location station 82"

- A) 82.21"
- B) 84.20"
- C) 81.20"
- D) 85.20"

51- What is the location of CG if 133 pounds of weight are removed from station 79.0"?

Aircraft weight 6140 lbs
CG location station 104.0"

- A) 104.55"
- B) 79.50"
- C) 105.35"
- D) 78.35"

52- Total weight 4800 lbs
CG located st. 88.0"
Fuel consumption 10.3 Gal/hr
Fuel arm st. 89.0"

What will be the CG after 1:30' of flight?

- A) 87.98"
- B) 88.01"
- C) 87.63"
- D) 88.63"

53- Aircraft weight 2730 lbs
CG prior to shift st. 77.0"
Fuel consumption 11.7 Gal/hr
(6.8 lbs/Gal)
Fuel arm st. 78.8"

After 1:45' of flight the CG will be located at:

- A) 76.34"
- B) 78.70"
- C) 76.90"
- D) 78.34"

54- If the center of gravity is near the forward limit, the airplane will:

- A) Benefit from reduced drag due to the decrease in angle of attack.
- B) Require elevator trim, which will result in an increase in fuel consumption.
- C) Require less power for a given airspeed.
- D) Tend to over rotate during takeoff.

55- An aircraft is loaded 110 pounds over maximum certificated gross weight. If fuel is drained to bring the aircraft weight within limits, how much fuel should be drained?

- A) 15.7 gallons
- B) 16.2 gallons
- C) 17.1 gallons
- D) 18.4 gallons

56- When must the center of gravity be computed?

- A) After every 400 hours inspection.
- B) Prior to every flight.
- C) At least every four years.
- D) During every yearly inspection.

57- Given:

Weight A. 63 lbs at 37" aft of datum.

Weight B. 214 lbs at 146" aft of datum.

Weight C. 26 lbs at 212" aft of datum.

The CG would be located how far aft of datum?

- A) 98.95"
- B) 76.7"
- C) 129"
- D) 106.45"

58- Where would the CG be located, if 110 pounds of weight were removed from station 140"?

Total weight	4300 lbs
CG location	station 103.0"

- A) 102.02"
- B) 102.05"
- C) 103.08"
- D) 104.05"

59- Where would the CG be located, if 90 pounds of weight were removed from station 30.0"?

Total weight	1340 lbs
CG location	station 80.5"

- A) 83.89"
- B) 76.86"
- C) 84.13"
- D) 78.56"

60- If 250 pounds of weight be removed from station 152" the CG would be located at:

Total weight	3675 lbs
CG location	station 91"

- A) 95.54"
- B) 86.54"
- C) 86.90"
- D) 95.90"

61- Could 100 pounds of weight be removed from station 30.0" without exceeding Aft CG limit?

Total weight 2800 lbs
CG location station 85.0"
Aft CG limit station 87.0"

- A) Yes, the new CG will be located at station 85.92"
- B) No, the new CG will be located at station 87.15"
- C) No, the new CG will be located at station 87.04"
- D) Yes, the new CG will be located at station 86.34"

62- Find the new CG if total moment change after gear and flap extension is 2350 in- lbs (FWD)

Total weight 4700 lbs
CG location st. 82.5"

- A) 83.0"
- B) Does not change.
- C) 82.0"
- D) 81.0"

63- What is the new CG after gear and flap retraction, if total moment displacement is 8840 in- lbs (aft)?

Total weight 6800 lbs
CG prior to shift st. 91.7"

- A) 92.0"
- B) 93.0"
- C) 90.4"
- D) 91.0"

64- After gear and flaps retraction, there was a change in total moment by 10800 in- lbs where would the CG be located? (Aft)

Total weight 13520 lbs
CG Location station 117"

- A) 117.8"
- B) 116.2"
- C) 118.0"
- D) 115.6"

65- How much weight must be added to bring CG within its limits?

Total weight 2930 lbs
CG location. 92.0 "
FWD CG Limit 92.5"
Arm of FWD Hold 45"
Arm of Aft Hold 145"

- A) 27.9 lbs
- B) 27.6 lbs
- C) 30.8 lbs
- D) 31.5 lbs

66- How much weight should be added to station 37" to shift CG 1" FWD?

Total weight 3270 lbs

CG location 89"

- A) 61.7 lbs
- B) 69.0 lbs
- C) 64.1 lbs
- D) 63.0 lbs

67- How much weight must be added to station 149.0" to place CG at station 91.5"?

Total weight 6147 lbs

CG location st.90"

- A) 106.9 lbs
- B) 160.4 lbs
- C) 156.3 lbs
- D) 158.2 lbs

68- How much weight must be added to station 39.0" to place CG at station 89.0"?

Total weight 5900 lbs

CG prior to shift st. 90.0"

- A) 115.7 lbs
- B) 93.4 lbs
- C) 118.0 lbs
- D) 111.0 lbs

69- Could 100 pounds of weight be added to station 130" without exceeding the aft CG limit?

Total weight 2780 lbs

CG location st. 84"

Aft CG limit st.86"

- A) Yes, the new CG will be at St. 85.6".
- B) No, the new CG will be at St. 86.5".
- C) Yes, the new CG will be at St. 82.4".
- D) No, the new CG will be at St. 87.5".

70- Could 110 pounds of weight be added to station 40" without exceeding the FWD CG limit?

Total weight 4550 lbs

CG location st. 80.5"

FWD CG limit st. 80.0"

- A) No, the new CG will be at St. 79.03".
- B) No, the new CG will be at St. 79.5".
- C) Yes, the new CG will be at St. 80.95".
- D) Yes, the new CG will be at St. 80.30".

71- What is the new CG if 120 lbs of weight be added to station 148"?

Total weight 4350 lbs
CG location st. 102"

- A) 103.2"
- B) 103.5"
- C) 100.8"
- D) 100.2"

72- An aircraft is loaded to 90,300 lbs and CG is at St. 754 inches. What would be the new CG if 340 lbs of cargo shift from FWD cargo compartment St. 285" to Aft cargo St. 635"?

- A) 636.3"
- B) 752.6"
- C) 755.3"
- D) 653.2"

73- What is the new CG location if 670 lbs of cargo are moved from forward cargo hold to the aft cargo hold?

Airplane weight 161,200 lbs
CG prior to shift 887"
Arm of FWD hold 409"
Arm of aft hold 1007"

- A) 884.51"
- B) 889.49"
- C) 1003.5"
- D) 1005.1"

74- Determine the new CG if 730 lbs of cargo are moved from St. 1150" to FWD arm of 548"?

Aircraft gross weight 169,000 lbs
CG prior to shift 901.6"

- A) 904.2"
- B) 1149.8"
- C) 899.0"
- D) 1100.9"

75- What load must be moved from St. 50.0" to St. 162.0" to place CG at its aft CG limit?

Airplane gross weight 2630 lbs
CG location St. 88.0"
Aft CG Limit St. 89.0"

- A) 25 lbs
- B) 21.65 lbs
- C) 23.5 lbs
- D) 22.4 lbs

76- What load must be moved from St. 174.0" to St. 45.0" to place CG at extremely FWD CG limit?

Airplane gross weight	3720 lbs
CG location	St. 90.0"
FWD CG limit	St. 88.5"

- A) 43.3 lbs
- B) 28.8 lbs
- C) 31.6 lbs
- D) 36.1 lbs

77- An aircraft is loaded to 6450 pounds with CG located at St. 92.0 inches, which is 1 inch aft of aft limit. How much load must be moved from St. 169.0" to St. 57.0" to move CG to its limits?

- A) 83.7 lbs
- B) 57.6 lbs
- C) 184.3 lbs
- D) 67.5 lbs

78- Where would the new CG be located if 70 lbs of load are removed from St. 144.0"?

Airplane gross weight	3900 lbs
CG Prior to shift	St. 89.0"

- A) 90.0"
- B) 88.0"
- C) 50.9"
- D) 78.9"

79- What would be the new CG location, if 133 pounds of weight were removed from St. 49.0"?

Airplane gross weight	2850 lbs
CG Prior to shift	St. 100.0"

- A) 102.08"
- B) 51.3"
- C) 102.5"
- D) 105.2"

80- What is the new CG location, if 172 pounds of weight are removed from St. 198"?

Airplane gross weight	4200 lbs
CG Prior to shift	st. 95"

- A) 90.6"
- B) 100.0"
- C) 193.8"
- D) 93.8"

81- Where would the new CG be located if 207 pounds of weight are removed from St. 43.0"?

Airplane gross weight 7790 lbs

CG Prior to shift st. 90"

- A) 88.7"
- B) 91.3"
- C) 92.4"
- D) 89.6"

82- How much weight must be removed from St. 160.0" to place CG at St. 90.5"?

Aircraft gross weight 8150 lbs

CG prior to shift st. 92"

- A) 179.8"
- B) 119.85"
- C) 175.9"
- D) 119.6"

83- What load must be removed from St. 50" to place CG at its extreme aft position?

Airplane gross weight 7300 lbs

CG location st. 91"

Aft CG limit st. 92"

- A) 178.1 lbs
- B) 173.8 lbs
- C) 80.2 lbs
- D) 90.8 lbs

84- How much weight must be removed from St. 43" to place CG at its limit?

Airplane gross weight 7700 lbs

CG location st. 88"

Aft CG limit st. 89.5"

- A) 239.6 lbs
- B) 256.7 lbs
- C) 248.4 lbs
- D) 261.3 lbs

85- An aircraft is loaded to 6900 lbs and CG is located at St. 103" which is 1 inch out of aft limit. How much weight must be removed from St. 192" to place CG at its range?

- A) 76.7 lbs
- B) 80.4 lbs
- C) 77.5 lbs
- D) 83.4 lbs

86- What would be the new CG location if 112 lbs of weight are added to St. 47.0"?

Aircraft gross weight 8790 lbs

CG prior to shift st. 99.0"

- A) 98.35"
- B) 99.7"
- C) 47.6"
- D) 48.7"

87- Where would the CG be located if 157 pounds of weight are added to St. 210.0"?

Airplane gross weight 9650 lbs

CG location st. 122.0"

- A) 120.6"
- B) 158.4"
- C) 123.4"
- D) 157.0"

88- What would be the new CG location if 203 pounds of weight are added to St. 221.0"?

Airplane gross weight 10500 lbs

CG prior to shift st. 121.0"

- A) 119.0"
- B) 123.0"
- C) 122.1"
- D) 119.8"

89- What would be the new CG location if 315 lbs of cargo are added to St. 74.4"?

Aircraft weight: 121,500 lbs

CG located at: St. 155"

- A) 74.2"
- B) 154.8"
- C) 155.2"
- D) 78.2"

90- How much weight must be added to St. 168.5 to place CG at St. 90.5"?

Airplane weight 8500 lbs

CG location St. 90.0"

- A) 54.1 lbs
- B) 54.5 lbs
- C) 105 lbs
- D) 109 lbs

91- What load must be added to St.59" to place CG at its extreme FWD position?

Airplane gross weight 9420 lbs

CG location st. 102"

FWD CG limit st. 100"

- A) 459.5 lbs
- B) 438.1 lbs
- C) 320.1 lbs
- D) 381.5 lbs

92- How much weight must be added to St. 73" to place CG at St. 102"?

Airplane gross weight 7750 lbs

CG location st. 103.5"

- A) 267.2 lbs
- B) 381.1 lbs
- C) 400.9 lbs
- D) 420.6 lbs

93- An aircraft is loaded to 8820 pounds and CG located at St. 105" which is 1.3 inch out of FWD limit. How much load (lbs) must be added to St. 211" to put CG in its range?

- A) 109.5
- B) 102.2
- C) 84.3
- D) 81.9

94- Define the Useful Load:

- A) Pay Load plus basic empty weight.
- B) Pay Load plus Usable Fuel.
- C) Basic empty weight plus Usable Fuel Load.
- D) That part of the pay Load which generates revenue.

95-The "Useful Load" is:

- A) TOW - fuel mass.
- B) BEW plus fuel load.
- C) Basic empty weight plus Usable Fuel Load.
- D) Ramp weight minus Dry Operating Mass.

96-The maximum mass to which an aeroplane may be loaded, prior to engine start, is:

- A) Maximum certificated taxi (ramp) mass.
- B) Maximum Regulated Taxi (Ramp) Mass.
- C) Maximum Certificated Takeoff Mass.
- D) Maximum Regulated Takeoff Mass.

97-What is the Zero Fuel Weight?

- A) MTOW minus fuel to destination minus fuel to alternative airfield.
- B) Maximum allowable mass of the aircraft with no usable fuel on board.
- C) Operating weight minus the fuel load.
- D) Actual loaded mass of the aircraft with no usable fuel on board.

98-By adding the payload to the Dry operating weight, we get:

- A) Ramp weight.
- B) Takeoff weight.
- C) Zero fuel weight.
- D) Landing weight.

99-Basic empty weight is the mass of the airplane less:

- A) Usable fuel and Payload.
- B) Usable fuel.
- C) Payload, portable water and lavatory chemicals.
- D) Unusable fuel, portable water and lavatory chemicals.

100-The Zero Fuel weight of an airplane is always:

- A) The Takeoff Mass minus the fuselage fuel mass.
- B) The Takeoff Mass minus the wing fuel mass.
- C) The Takeoff Mass minus the Takeoff Fuel Mass.
- D) The Maximum Takeoff Mass minus the Takeoff Fuel Mass.

101-The Actual Zero Fuel weight is equal to the:

- A) Basic Empty weight plus the fuel loaded.
- B) Operating Mass plus all the payload.
- C) Basic operating weight plus the payload.
- D) Actual Landing weight plus Trip Fuel.

102-Which of the following alternatives corresponds to Zero Fuel weight?

- A) Operating mass plus load of passengers and cargo.
- B) The mass of an aeroplane with no usable fuel.
- C) Operating mass plus load of passengers.
- D) Takeoff Mass minus fuel to destination and alternate.

103-For the purpose of completing the weight and Balance documentation, the Basic empty weight is defined as:

- A) Weight of standard airplane optional equipment, unusable fuel.
- B) The Total Mass of airplane excluding all usable fuel.
- C) The Total Mass of the airplane excluding all payload.
- D) The Total Mass of the airplane excluding crew and crew baggage.

104-At the flight preparation stage, the following parameters in particular are available for determining the mass of the aircraft:

1- Basic empty weight

2- Payload

Which statement is correct?

- A) The basic empty weight includes fixed equipment needed to carry out a flight.
- B) The payload is the mass of the aeroplane without takeoff fuel.
- C) The basic empty weight includes takeoff fuel.
- D) The basic empty weight includes the payload.

105- Basic empty weight of an aeroplane includes:

- A) Fuel and passenger's baggage and cargo.
- B) Unusable fuel and reserve fuel.
- C) Weight of standard airplane, optional equipment, unusable fuel.
- D) Passenger's baggage and cargo.

106-The Total Mass of an aircraft including crew, crew baggage, plus usable fuel and payload, is referred to as:

- A) Maximum Zero Fuel Mass.
- B) Zero Fuel Mass.
- C) Landing weight.
- D) Ramp weight.

107- Allowed payload is the difference between:

- A) Ramp weight and Basic empty weight.
- B) Allowed Takeoff weight and Basic Mass plus Trip Fuel.
- C) Allowed Takeoff weight and Basic empty weight.
- D) Allowed zero fuel weight and Dry operating weight.

108- The Zero Fuel weight & Dry operating weight:

- A) Differ by the sum of the weight of usable fuel plus Payload.
- B) Are the same value.
- C) Differ by the value of the payload.
- D) Differ by the weight of usable fuel.

109- The term "Useful Load" as applied to an airplane includes:

- A) Payload only.
- B) Payload plus usable fuel.
- C) The revenue-earning portion of payload only.
- D) The revenue-earning portion of payload plus usable fuel.

110- For the purpose of completing the Mass and Balance documentation, the Ramp weight is considered to be zero fuel weight plus:

- A) Payload.
- B) Unusable fuel & engine oil.
- C) Trip Fuel Mass.
- D) Usable fuel.

111- Payload is the:

- A) Zero Fuel Mass minus Dry operating weight.
- B) Basic empty weight minus the disposable load.
- C) Basic empty weight minus the Variable Load.
- D) Takeoff Mass minus Zero Fuel Mass.

112- While making mass and balance calculation for a particular airplane, the term "Empty Mass" applies to the sum of airframe, engine(s), fixed ballast plus:

- A) All the consumable fuel and oil, but not including any radio or navigation equipment installed by manufacturer.
- B) All the oil, fuel, and hydraulic fluid but not including crew and payload.
- C) Unusable fuel and full operating fluids.
- D) All the oil and fuel.

113- The Term "Maximum Zero Fuel Mass" consists of:

- A) The maximum mass authorized for a certain aeroplane not including the fuel load and operational items.
- B) The maximum mass authorized for a certain aeroplane not including payload and fuel load.
- C) The maximum permissible mass of an aeroplane with no usable fuel.
- D) The maximum mass for some aeroplanes including the fuel load and the Traffic Load.

114- Which is true of the airplane Basic empty weight?

- A) It is ramp weight minus fuel load.
- B) It is ramp weight minus useful load and equipment
- C) It is Ramp weight minus payload
- D) It is the actual Takeoff Mass, less payload.

115- The Actual Takeoff weight is equivalent to:

- A) Actual Zero Fuel weight plus the payload.
- B) Basic empty weight plus equipment and crew, usable fuel and the payload.
- C) Basic empty weight plus the usable fuel.
- D) Actual Landing Mass plus the takeoff fuel.

116- The Payload is defined as:

- A) The Total Mass of flight crew, passengers, baggage, cargo and usable fuel.
- B) The Total Mass of crew and passengers excluding any baggage or cargo.
- C) The Total Mass of passengers, baggage and cargo.
- D) The Total Mass of passengers, baggage, cargo and usable fuel.

117- The Maximum Zero Fuel Weight of an aircraft is:

- A) The maximum permissible Takeoff Mass of the aircraft.
- B) The maximum permissible mass of an aircraft with no usable fuel.
- C) The maximum permissible mass of an aircraft with zero payload.
- D) The maximum permissible Landing Mass.

118- With regards to the Maximum Zero Fuel Weight (MZFW):

- A) It is the maximum weight that an aircraft can be loaded to without usable fuel.
- B) It is lower than the Maximum Takeoff Weight by the weight of a payload.
- C) is more relevant to aircraft with fuselage fuel tanks.
- D) is important as exceeding the MZFW may mean that there is insufficient lift to get the aircraft airborne.

119- What is the Zero Fuel weight?

- A) The maximum permissible mass of an aeroplane with no Usable Fuel Mass.
- B) The mass of the aircraft at the start of the taxi (at departure from the loading gate).
- C) Basic empty weight plus payload, equipment, crew but excluding fuel.
- D) The empty weight of an aeroplane plus standard items such as: unusable fuel and liquids; lubricating oil in engine and other auxiliary units.

120- Takeoff Mass is described as:

- A) The Takeoff Mass subject to departure airfield limitations.
- B) The mass of an aeroplane including everything and everyone contained within it at the start of the takeoff run.
- C) Basic empty weight & fuel but without Payload.
- D) The lowest of performance limited and structural limited TOW.

121- Given:

Maximum Structural Takeoff Mass:	146900 kg
Maximum Structural Landing Mass:	93800 kg
Maximum Zero Fuel Mass:	86400 kg
Trip Fuel	27500 kg
Block Fuel	35500 kg
Engine starting and taxi fuel:	1000 kg

The Maximum Takeoff Mass is equal to:

- A) 120300 kg
- B) 121300 kg
- C) 113900 kg
- D) 120900 kg

122- Given:

Dry operating mass:	38000 kg
Maximum Structural Takeoff Mass:	72000 kg
Maximum Landing Mass:	65000 kg
Maximum Zero Fuel Mass:	61000 kg
Fuel burn:	8000 kg
Takeoff Fuel:	10300 kg

The Maximum allowed Takeoff Mass and payload are respectively:

- A) 73000 kg and 27000 kg.
- B) 71300 kg and 25300 kg.
- C) 73000 kg and 24700 kg.
- D) 71300 kg and 23000 kg.

123- Given an airplane with:

Maximum Structural Landing Mass:	125000 kg
Maximum Zero Fuel Mass:	108500 kg
Maximum Structural Takeoff Mass:	155000 kg
Dry operating mass:	82000 kg
Scheduled Trip Fuel:	17000 kg
Reserve Fuel:	5000 kg

Assuming performance limitation is not restricting, the maximum permitted Takeoff Mass and Maximum payload are respectively:

- A) 125500 kg and 21500kg
- B) 130500 kg and 31500 kg
- C) 130500 kg and 26500 kg
- D) 125500 kg and 26500 kg

124- The dry operating Mass of an aircraft is 30000 kg. The masses of the following items are:

Payload:	665 kg
Fuel at takeoff:	3000 kg
Unusable fuel:	120 kg

The zero fuel weight is:

- A) 30300 kg
- B) 30665 kg
- C) 38300 kg
- D) 30785 kg

125- The Dry operating weight of an aircraft is 2000 kg. The Maximum Takeoff Mass is 3500 kg. The Block Fuel Mass is 550 kg, and the Taxi Fuel Mass is 50 kg. The available mass of payload is:

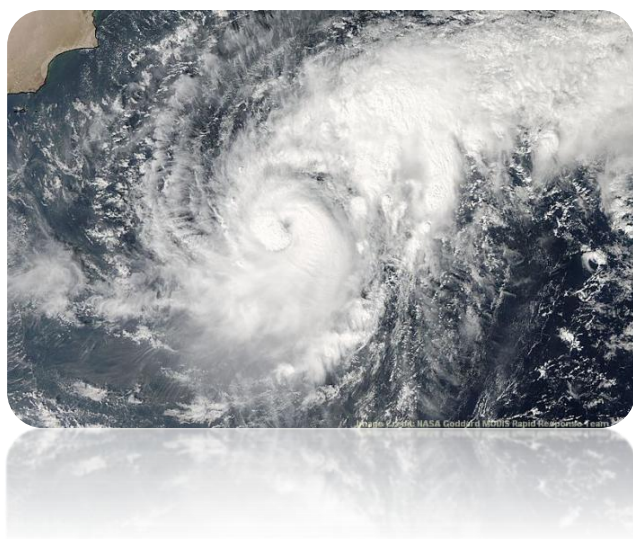
- A) 1500 kg
- B) 950 kg
- C) 1000 kg
- D) 1450 kg

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	B	41	A	81	B	121	D
2	B	42	B	82	C	122	D
3	C	43	C	83	B	123	C
4	A	44	B	84	C	124	B
5	D	45	A	85	A	125	C
6	D	46	C	86	A		
7	B	47	A	87	C		
8	B	48	B	88	B		
9	A	49	C	89	B		
10	B	50	A	90	B		
11	D	51	A	91	A		
12	A	52	A	92	C		
13	D	53	C	93	A		
14	D	54	B	94	B		
15	A	55	D	95	D		
16	D	56	B	96	A		
17	A	57	C	97	D		
18	C	58	A	98	C		
19	B	59	C	99	A		
20	D	60	B	100	C		
21	C	61	C	101	C		
22	C	62	C	102	B		
23	B	63	B	103	A		
24	A	64	A	104	A		
25	B	65	A	105	C		
26	C	66	C	106	D		
27	B	67	B	107	D		
28	B	68	C	108	C		
29	C	69	A	109	B		
30	A	70	B	110	D		
31	A	71	A	111	A		
32	A	72	C	112	C		
33	B	73	B	113	C		
34	C	74	C	114	B		
35	C	75	C	115	B		
36	B	76	A	116	C		
37	C	77	B	117	B		
38	A	78	B	118	A		
39	A	79	C	119	C		
40	C	80	A	120	B		



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Meteorology



1- How does the height of the tropopause normally vary with latitude in the northern hemisphere?

- A) It remains constant throughout the year.
- B) It remains constant from north to south.
- C) It increases from south to north.
- D) It decreases from equator to pole.

2- Which statement is true concerning the tropopause from the equator to the poles?

- A) The tropopause height decreases, the tropopause temperature increases.
- B) The tropopause height decreases, the tropopause temperature decreases.
- C) The tropopause height increases, the tropopause temperature increases.
- D) The tropopause height increases, the tropopause temperature decreases.

3- What can be said about the temperature in the lower stratosphere?

- A) The temperature is constant.
- B) The temperature is increasing.
- C) The temperature is decreasing.
- D) The temperature is first increasing and then decreasing.

4- The percentage concentration of gases in the atmosphere is constant from the surface of the Earth to a certain altitude with the exception of:

- A) Oxygen
- B) Nitrogen
- C) Hydrogen
- D) Water vapour

5- In the troposphere the temperature:

- A) Decreases with altitude.
- B) Increases with altitude.
- C) Is almost constant.
- D) Increases at first and decreases afterward.

6- The rate of decrease of temperature with height per 100 m in the International Standard Atmosphere is:

- A) 0.65 °C
- B) 1 DC
- C) 0.5 °C
- D) Variable

7- The diurnal variation in temperature is largest when the sky is:

- A) Clear and winds are strong.
- B) Clear and winds are weak.
- C) Overcast and winds are weak.
- D) Overcast and winds are strong.

8- On a clear sky, continental ground surface, wind calm, the minimum temperature is reached approximately:

- A) At the moment the sunrises.
- B) Half an hour before sunrise.
- C) Half an hour after sunrise.
- D) One hour before sunrise.

9- The majority of troposphere heating is the result of:

- A) Radiation of the sun.
- B) Heating from the ground below.
- C) Re-radiation of the sun's rays from the surface of the Earth.
- D) Re-radiation from the clouds.

10- The QNH at an airfield located 200 meters above sea level is 1009 hPa. The air temperature is 10°C lower than a standard atmosphere. What is the QFF?

- A) Less than 1009 hPa.
- B) 1009 hPa.
- C) More than 1009 hPa.
- D) It is not possible to give a definitive answer

11- The QFF at an airfield in California located 69 meters below sea level is 1030 Hpa. The air temperature is 10°C lower than a standard atmosphere. What is the QNH?

- A) It is not possible to give a definitive answer.
- B) Less than 1030 hPa.
- C) 1030 Hpa.
- D) More than 1030 hPa.

12- The QNH at an airfield located 0 meters above sea level is 1022 Hpa. The air temperature is not available. What is the QFF?

- A) It is not possible to give a definitive answer.
- B) Less than 1022 hPa.
- C) More than 1022 hPa.
- D) 1022 hPa.

13- The QNH at an airfield in Ramsar located 69 meters below sea level is 1018 Hpa. The air temperature is 10°C higher than a standard atmosphere. What is the QFF?

- A) More than 1018 Hpa.
- B) Less than 1018 Hpa.
- C) 1018 Hpa.
- D) It is not possible to give a definitive answer.

14- Which of the following is true concerning atmospheric pressure?

- A) It is higher in winter than in summer.
- B) It decreases with height.
- C) It is higher at night than during the day.
- D) It always decreases with height at a rate of 1 Hpa per 8 m.

15- The QNH at an airfield located 200 meters above sea level is 1022 Hpa. The air temperature is not available. What is the QFF?

- A) Less than 1022 Hpa.
- B) It is not possible to give a definitive answer.
- C) More than 1022 Hpa.
- D) 1022 Hpa.

16- A rising parcel of air which has no heat entering or leaving it, will:

- A) Reduce in pressure, rise in temperature, decrease in density.
- B) Maintain volume, decrease in density and reduce in pressure.
- C) Maintain pressure, reduce in density increase in volume.
- D) Reduce In pressure, decrease in density, increase in volume.

17- State the definition for QFF:

- A) QFE reduced to MSL, using standard temp gradient.
- B) QNH reduced to MSL, using standard temp gradient.
- C) QFE reduced to MSL, using actual temp gradient.
- D) QNE reduced to MSL, using standard temp gradient.

18- If you are flying at FL300 in an air mass that is 15°C warmer than a standard atmosphere, what is the outside temperature likely to be?

- A) -30°C
- B) -45°C
- C) -60°C
- D) -15 °C

19- In Tehran Imam Khomeini airport, the local QNH is 994 hPa. The elevation of airport is 3256 ft. The QFE adjustment in airport is: (3256' = 114 hPa)

- A) 880 hPa
- B) 1108 hPa
- C) 900 hPa
- D) 948 hPa

20- An aircraft is flying at FL080. The local QNH is 1000 hPa. After the second altimeter has been adjusted to the local QNH' the reading will be approximately: (1 hPa = 27')

- A) 7650 ft
- B) 8600 ft
- C) 8350 ft
- D) 8000 ft

21- An aircraft lands at an airport (airport elevation 540 ft, QNH 993 hPa) with the altimeter set to 1013 hPa. What will it indicate? (1 hPa = 27')

- A) 1080 ft
- B) 700 ft
- C) 380 ft
- D) 0 ft

22- You are flying at FL 130, and your true altitude is 12000 ft. what is the temperature deviation from that of the standard atmosphere at FL 130 (QNH 1013 hPa)? (1 hPa = 27')

- A) ISA +12 °C.
- B) ISA ±0 °C.
- C) ISA +20 °C.
- D) ISA -20 °C.

23- During the climb after takeoff, the altimeter setting is adjusted at the transition altitude. If the local QNH, is 1023 hPa, what will happen to the altimeter reading during setting standard pressure?

- A) It is not possible to give a definitive answer.
- B) It will increase.
- C) It will remain the same
- D) It will decrease.

24- An aircraft is flying at FL 180 on the northern hemisphere with standard temperature and experiencing a crosswind from the left. Which of the following is correct concerning its true altitude?

- A) It remains constant.
- B) It increases.
- C) It decreases.
- D) Without knowing temperatures at FL180 this question cannot be answered.

25- You are flying at FL200. Outside air temperature is -40°C, and QNH is 1033 hPa. What is the true altitude?

(Note: assume 1 hPa = 27 ft)

- A) 20660 feet.
- B) 19340 feet.
- C) 21740 feet.
- D) 18260 feet.

26- A vertical separation of 1000 ft, is the standard required separation between two flight level Under conditions of cold air advection (ISA -15°C), what would the true vertical separation be?

- A) More than 1000 ft.
- B) It remains 1000 ft.
- C) Less than 1000 ft.
- D) Without QNH information, it cannot be determined.

27- You are planning to fly across a mountain range. The chart recommends a minimum altitude of 12000 ft above mean sea level. The air mass you will be flying through is an average 10°C warmer than ISA. Your altimeter is set to 1023 hPa (QNH of a nearby airport at nearly sea level). What altitude will the altimeter show when you have reached the recommended minimum altitude?

- A) 12210 feet.
- B) 11540 feet.
- C) 11250 feet.
- D) 11790 feet.

28- During a flight over the sea at FL135, the true altitude is 13500 feet; local QNH is 1019.hPa. What information can be gained about the air mass in which the aircraft is flying?

- A) Its average temperature is the same as ISA.
- B) It is colder than ISA.
- C) It is warmer than ISA.
- D) There is insufficient information to make any assumption.

29- If atmospheric conditions exist such that the temperature deviation is ISA +10 °C in the lower troposphere up to 18000 ft, what is the actual layer thickness between FL060 and FL120?

- A) 6240 ft
- B) 6000 ft
- C) 5900 ft
- D) 5760 ft

30- During a flight at FL100 from Shiraz (QNH 1012 hPa) to Tehran (QNH 1015 hPa), an aircraft remains at a constant true altitude. The reason for this is that:

- A) The air at Shiraz is colder than that at Tehran.
- B) The altimeters are erroneous, and need to be tested.
- C) The air at Shiraz is warmer than that at Tehran.
- D) One of the two QNH values may be incorrect.

31- During a flight at FL100 from Mashhad (QNH 1016 hPa) to Tehran (QNH 1016 hPa), the true altitude is constantly decreasing. What is the probable reason for this?

- A) One of the QNH values must be wrong.
- B) The air at Mashhad is warmer than that at Tehran.
- C) The altimeter is faulty.
- D) The aircraft is being blown off track to the left.

32- During the climb after takeoff, the altimeter setting is adjusted at the transition altitude. If the local QNH is 966 hPa, what will happen to the altimeter reading during setting standard pressure?

- A) It will decrease.
- B) It will remain the same.
- C) It is not possible to give a definitive answer.
- D) It will increase.

33- Which of the following is true concerning an aircraft that is flying at FL180 in the northern hemisphere, where wind is geostrophic and the true altitude remains constant?

- A) There is a cross wind from the right.
- B) There is a cross wind from the left.
- C) There is no cross wind.
- D) Without knowing temperature at FL180 this question cannot be answered.

34- Which of the following clouds produces severe turbulence?

- A) CB
- B) TCU
- C) Rotor
- D) Roll cloud

35- As atmosphere pressure decrease or air temperature increases the density of the air will:

- A) Decrease
- B) Increase
- C) Remain constant
- D) Decrease below 20000 ft

36- The greatest danger from turbulence usually is encountered on the:

- A) Leeward side
- B) Near a thunderstorm
- C) At or above ACSL
- D) All answers are correct

37- Which is characteristics of stratosphere?

- A) Its stable layer
- B) Temperature decrease with altitude but at a slower rate
- C) Common location of thunder storm
- D) A & B are correct.

38- Rime ice normally is encountered in ... and clear ice in ...

- A) Stratus clouds and cumulus clouds
- B) Cumulus clouds and stratus clouds
- C) Cumulus clouds and cumulus clouds
- D) Stratus clouds and stratus clouds

39- One of the characteristic of the tropopause is?

- A) Abrupt change in temperature laps rate
- B) Abrupt change in visibility
- C) Abrupt change in wind direction
- D) Abrupt change in type of cloud

40- Necessary condition for developing cumoliform cloud is?

- A) Unstable and moist air
- B) Unstable
- C) Moist air
- D) Stable air

41- What is the approximate mixture of the gases in the earth's atmosphere?

- A) 98% oxygen, 2% nitrogen
- B) 78%oxygen, 21%nitrogen
- C) 78%oxygen, 21%carbon dioxide
- D) 78%nitrogen, 21% oxygen

42- In which of the conditions we have greatest instability?

- A) Warm and moist
- B) Warm and cold
- C) Cold and moist
- D) Cold and dry

43- When do we have frontal inversion?

- A) When cold air forced under warm air
- B) When warm air spread over cold air
- C) During calm, cool and clear night
- D) A & B are correct.

44- The atmospheric layer that contains most of the earth's weather is the:

- A) Troposphere
- B) Stratosphere
- C) Mesosphere
- D) Thermosphere

45- When cool dense air replaces warmer rising air the process is called:

- A) Coriolis
- B) Convection
- C) Circulation
- D) Pressure gradient force

46- The force that causes air to flow from high pressure area to low pressure area is called:

- A) Convection
- B) Coriolis force
- C) Surface friction
- D) Pressure gradient force

47- In the northern hemisphere an air mass moving above the surface of the earth is

- A) Deflected to the right by the Coriolis force
- B) Deflected clockwise in areas of low pressure
- C) Deflected to the right by pressure gradient force
- D) Subject to direct movement from high to low pressure

48- Which statement is correct concerning wind direction in the northern hemisphere?

- A) Friction deflects the wind toward areas of higher pressure.
- B) Wind always flows directly from areas of high to areas of low pressure.
- C) Wind flows clockwise around high pressure areas and counterclockwise around low pressure areas.
- D) Wind flows clockwise around low pressure areas and counterclockwise around high pressure areas.

49- Every physical process of weather is accompanied by or is a result of:

- A) Moisture
- B) Heat exchange
- C) Movement of air
- D) Pressure differential

50- The severe phenomena associated with thunderstorm is:

- A) Lightning
- B) Icing
- C) Turbulence
- D) Hail

51- What is the most dangerous type of thunderstorm?

- A) Air mass TS
- B) Nocturnal TS
- C) Frontal TS
- D) Squall line TS

52- What is the standard temperature at 20,000 feet?

- A) -15° c
- B) -20° c
- C) -25° c
- D) +25° c

53- Which conditions are favorable for the formation of a surface based temperature inversion?

- A) Clear cool nights with calm or light wind
- B) Area of unstable air rapidly transferring heat from the surface
- C) Broad areas of cumulus clouds with smooth level bases at the same altitude
- D) Clear cool nights with gusty wind

54- The amount of water vapor an air mass can hold is depend to it's:

- A) Pressure
- B) Temperature
- C) Relative humidity
- D) Proximity to a large body of water

55- The temperature at which air becomes saturated is the:

- A) Dew point
- B) Temperature at which dew will form
- C) Temperature at which precipitation begins
- D) Point at which condensation and evaporation are in balance

56- If the temperature is 55°F and slowly decreasing and the dew point is 51°F what type of weather should you expect?

- A) Frost
- B) Rain showers
- C) Thunderstorms
- D) Fog or low clouds

57- Frost will form when the surface of the aircraft is at or below the dew point and.....

- A) Dew is on the aircraft structure
- B) The dew point temperature is below freezing
- C) The relative humidity is high
- D) The dew point temperature is above freezing

58- The main factors affecting the stability of air include:

- A) Moisture and temperature
- B) Relative humidity and dew point
- C) The lifting action of the atmosphere
- D) Atmospheric pressure and surface friction

59- What type of weather can be expected from moist unstable air and very warm surface temperature?

- A) Fog and low stratus clouds
- B) Continuous heavy precipitation
- C) Strong updrafts and cumulonimbus clouds
- D) A & B are correct.

60- Which types of cloud would indicate convective turbulence?

- A) Cirrus clouds
- B) Nimbostratus clouds
- C) Towering cumulus clouds
- D) Rotor clouds

61- The stability of an air mass can be determined by referring to its:

- A) Dew point temperature
- B) Ambient Temperature lapse rate
- C) Relative humidity at 18000 ft MSL
- D) Wind velocity and direction of movement

62- What is the approximate base of cumuliform clouds if the surface temperature is 78°F and the dew point is 60°F?

- A) 1.800 ft AGL
- B) 2.900 ft AGL
- C) 4.000 ft AGL
- D) 5.000 ft AGL

63- what is the approximately indicated altitude would you expect to find the bases of cumulus clouds if the surface temperature at 2.500 ft MSL is 95F and the dew point is 67 F?

- A) 6200 ft MSL
- B) 7400 ft MSL
- C) 8800 ft MSL
- D) 10,500 ft MSL

64- The condition associated with the formation of a temperature inversion is:

- A) Stable air
- B) Cumuliform clouds
- C) Warming from below
- D) The vertical mixing of air

65- A common cause of a surface based temperature inversion is the:

- A) Lifting of air along a cold front
- B) Passage of a warm air mass over a cool surface
- C) Rapid lifting of warm moist air as it moves up a mountain slope
- D) Radiation cooling of the surface on cool clear nights

66- What conditions would you expect to encounter when a low level temperature inversions exists and the relative humidity is high?

- A) Strong vertical air movement in clear air
- B) Several thick layers of clouds extending to middle altitudes
- C) Smooth air but poor visibility due to haze, fog or stratus cloud
- D) Rain shower good visibility and light to moderate turbulence

67- The weather conditions associated with stable air include:

- A) Showery precipitation
- B) Clouds with extensive vertical development
- C) Wide areas of layer clouds with little or no turbulence
- D) Moderate to heavy turbulence in and near cumuliiform clouds

68- What conditions might you encounter when flying in to unstable air?

- A) Stratiform cloud with vertical current
- B) Vertical cloud development and turbulence
- C) Continuous precipitation and poor visibility
- D) Haze, fog or smoke trapped in shallow layers near the surface

69- What types of clouds precipitation and visibility are usually associated with unstable air?

- A) Layered clouds shower and poor visibility
- B) Cumuliiform clouds, rain showers and poor visibility
- C) Layered clouds, steady precipitation and good visibility
- D) Cumuliiform clouds rain showers and good visibility outside of shower areas

70- During the life cycle of a thunderstorm which stage is characterized predominately by downdrafts?

- A) Cumulus stage
- B) Mature stage
- C) Building stage
- D) Dissipating stage

71- The jet stream and associated clear air turbulence (turbulent weather) can sometimes be visually identified in flight by long strikes of cirrus clouds at high altitude:

- A) True
- B) False

72- Thunderstorm formation requires:

- A) Unstable lapse rate
- B) Lifting actions
- C) High moisture
- D) All answers are correct

73- Which type of cloud in mountain wave turbulence is lens shaped?

- A) Rotor cloud
- B) Cap cloud
- C) Altocumulus standing lenticular
- D) A & C are correct

74- Which cloud in mountain wave turbulence may obscure the mountain peak?

- A) Rotor cloud
- B) Altocumulus standing lenticular
- C) Towering cumulus
- D) Cap cloud

75- In mountain wave turbulence may be marked by clouds:

- A) Rotor cloud
- B) Altocumulus standing lenticular
- C) Towering cumulus
- D) Cap cloud

76- Moist unstable air mass is characterized by:

- A) Fog and drizzle
- B) Poor visibility and smooth air
- C) Stratus or nimbostratus clouds and poor visibility
- D) Cumuliform clouds, showers, thunderstorms and turbulence

77- When you have steady precipitation near warm front you can expect:

- A) Smooth air
- B) Fog at lower altitude
- C) Thunderstorm
- D) A & B are correct

78- When thunderstorm reaches to its greatest intensity?

- A) Mature stage
- B) Building stage
- C) Dissipating stage
- D) Cumulus stage

79- Water vapor is added to the atmosphere by:

- A) Condensation & sublimation
- B) Evaporation & sublimation
- C) Condensation
- D) All answers are correct

80- Nimbostratus clouds occur at middle altitudes extend over a wide area cause moderate to heavy rain or snow.

- A) True
- B) False

81- Fast moving (ana) Cold front associated with:

- A) Cumuli form clouds
- B) Turbulence
- C) Gusty wind
- D) All answers are correct

82- An air mass source region is an area characterized by

- A) Frequent frontal activity
- B) Semi-permanent or permanent low pressure areas
- C) Strong westerly winds a mid-latitude location
- D) Large areas with uniform moisture and temperature

83- The area that separates two different air masses is called:

- A) Front
- B) Source region
- C) Frontal zone
- D) Discontinuity region

84- What is(are) the variable way(s) to recognize the passage of front?

- A) Temperature change
- B) Change in wind direction and less frequently wind speed
- C) Pressure change
- D) All answers are correct

85- Which weather phenomenon is associated with low pressure?

- A) Ridge
- B) Turbulence
- C) Good weather
- D) A and B are correct

86- When a fast-moving (ana) cold front displaces very moist unstable air it:

- A) May produce wide areas of continuous rain
- B) Stratiform clouds ahead of the front
- C) A relatively wide area of frontal discontinuity
- D) A squall line of cumuliform clouds 50 to 200 miles ahead of the front

87- Steady rain preceding a front is an indication of:

- A) A broad area of frontal discontinuity
- B) Cumuliform clouds with little or no turbulence
- C) A rapidly approaching cold front with cumuliform type clouds
- D) An approaching warm front with associated stratus and little or no turbulence

88- Frontal thunderstorm occurs with:

- A) Low pressure
- B) Strong wind
- C) Any type of front
- D) All answers are correct

89- The beginning of the mature stage of thunderstorm development is signed by:

- A) start of precipitation
- B) Arrival of the gust front and formation of roll clouds
- C) First observational of severe weather such as tornadoes or hail
- D) Beginning of strong updrafts that may extend several thousand feet above the cloud top

90- The most severe types of thunderstorms are associated with a

- A) Warm front
- B) Cold front
- C) Squall line
- D) Large area of warm, moist air

91- Mature stage of thunderstorm can be recognized by:

- A) Sharp drop of temperature
- B) Start rain at the surface
- C) Pressure rise
- D) All answers are correct

92- A narrow band of non-frontal thunderstorms that often develops ahead of a fast-moving cold front is known as

- A) Squall line
- B) An occluded front
- C) A steady state thunderstorm
- D) Convective current

93- What is the nearest layer of atmosphere above the ground?

- A) Troposphere
- B) Tropopause
- C) Stratosphere
- D) Stratopause

94- A gray or patchy cloud is called:

- A) Alto cumulus
- B) Alto stratus
- C) Nimbostratus
- D) A & B are correct

95- The type of cloud that indicates convective turbulence is a:

- A) Rotor cloud
- B) Cirrocumulus
- C) Cumulus or towering cumulus
- D) Roll cloud and associated gust front

96- Cumulus stage associated with:

- A) Predominant down draft
- B) Predominant up draft
- C) Up draft & down draft
- D) None

97- When will we have small temperature/dew point spread this condition is favorable for forming:

- A) Rain
- B) Very low cloud
- C) Drizzle
- D) A & B are correct

98- Which of the following clouds has the greatest turbulence?

- A) Mountain wave turbulence
- B) CB
- C) Rotor cloud
- D) Nimbus stratus

99- Cumuli form clouds:

- A) Smooth air for flying
- B) Produces turbulence at or below
- C) Has the greatest instability
- D) None

100- What conditions are required for the formation of radiation fog?

- A) A gentle wind moving moist air up a mountain slope
- B) Cool calm and clear nights when the humidity is high
- C) High temperature moist air and intense beating from the sun
- D) Moderate winds transporting warm moist air from the sea across a cooler land mass

101- Which statement is true with respect to a high or low pressure system?

- A) A low pressure area trough is an area of descending air.
- B) A high pressure area or ridge is an area of descending air
- C) A high pressure area or ridge is an area of rising air
- D) A low pressure area is a ridge of descending air

102- Which statement is true regarding high or low pressure system?

- A) A high pressure area or ridge is an area of rising air
- B) A low pressure area or trough is an area of rising air
- C) Both high and low pressure areas are characterized by descending air
- D) A high pressure area is a trough of descending air

103- The conditions necessary for the formation of CB clouds are a lifting action and:

- A) Stable, dry air
- B) Unstable, Dry air
- C) Unstable, moist air
- D) Stable, moist air

104- A low ambient lapse rate usually indicates the air is:

- A) Dry and stable
- B) Dry and unstable
- C) Moist and stable
- D) Moist and unstable

105- The most reliable indication that you are crossing a front is a change in:

- A) Pressure
- B) Wind speed
- C) Temperature
- D) Wind direction

106- Which stage of thunderstorm is marked by continues updraft?

- A) Mature stage
- B) Cumulus stage
- C) Dissipating stage
- D) Period in which precipitation is falling

107- The cloud type associated with the most severe turbulence is:

- A) Cumulus
- B) Cumulonimbus
- C) Altocumulus
- D) Standing lenticular altocumulus

108- Thunderstorms reach their greatest intensity in:

- A) Mature stage
- B) Cumulus stage
- C) Dissipating stage
- D) Periods when precipitation is not falling

109- Fog that typically forms over fairly level land on clear, calm humid nights is called

- A) Steam fog
- B) Vapor fog
- C) Radiation fog
- D) Advection fog

110- What is the standard temperature at 10,000 ft?

- A) 5°C
- B) 0°C
- C) -10°C
- D) -5°C

111- What causes surface winds to flow across the isobars at an angle rather than parallel to the isobars?

- A) Surface friction
- B) Coriolis force
- C) Heat radiation from the surface
- D) The greater atmospheric pressure on the surface

112- What is meant by the term dew point?

- A) The temperature at which condensation and evaporation are equal
- B) The temperature at which dew will always form
- C) The temperature to which air must be cooled to become saturated
- D) The spread between actual temperature and the temperature during evaporation

113- The amount of water vapor which air hold largely depends on:

- A) The dew point
- B) Air temperature
- C) Stability of air
- D) Relative humidity

114- Clouds , fog or dew will always form when:

- A) Water vapor condenses
- B) Relative humidity exceeds 100%
- C) Water vapor is present
- D) The dew point is higher than the temperature

115- What type of clouds will be formed if very stable moist air is forced upslope?

- A) Vertical clouds with increasing height
- B) Layer clouds with little vertical development
- C) First layer clouds and then vertical clouds
- D) First vertical clouds and then layer clouds

116- An unstable air mass is forced to ascend a mountain slope what type of cloud can be expected?

- A) Clouds with considerable vertical development and associated turbulence
- B) Layer clouds with turbulence
- C) Layer clouds with little vertical development
- D) Layer clouds with a temperature inversion

117- What is a characteristic of stable air?

- A) Stratiform clouds
- B) Unlimited visibility
- C) Fair weather cumulus clouds
- D) Temperature decreases rapidly with altitude

118- What are the characteristics of unstable air?

- A) Turbulence and good surface visibility
- B) Turbulence and poor surface visibility
- C) Nimbostratus clouds and good surface visibility
- D) Nimbostratus clouds and poor surface visibility

119- What are some characteristics of unstable air?

- A) Poor visibility, intermittent rain and clear icing
- B) Good visibility , intermittent rain and rime icing
- C) Poor visibility , showers and clear icing
- D) Good visibility , showers and cumuliform clouds

120- Nimbostratus a gray or dark massive cloud layer, belongs to which family of clouds?

- A) High clouds
- B) Middle clouds
- C) Low clouds
- D) Clouds with extensive vertical development

121- The suffix nimbus used in naming clouds means:

- A) A cloud with extensive vertical development
- B) A rain cloud
- C) A middle cloud containing ice pellets
- D) An accumulation of clouds

122- Which family of cloud is least likely to contribute to structural icing on an aircraft?

- A) Low clouds
- B) Middle clouds
- C) High clouds
- D) Clouds with extensive vertical development

123- Standing lenticular clouds (ACSL) in mountainous areas indicate:

- A) Turbulence
- B) Unstable air
- C) An inversion
- D) Light variable winds

124- The presence of standing lenticular altocumulus:

- A) Heavy rain
- B) Very strong turbulence
- C) Heavy icing conditions
- D) An approaching storm

125- A temperature inversion forms:

- A) Only in summer
- B) Only in winter
- C) An unstable layer of air
- D) A stable layer of air

126- The most frequent type of ground or surface based temperature inversion is that produced by:

- A) Terrestrial radiation on a clear and relatively still night
- B) Warm air being lifted rapidly aloft in the vicinity of mountainous terrain
- C) The movement of colder air under warm air or the movement of warm air over cold air
- D) Widespread sinking of air within a thick layer aloft resulting in heating by compression

127- In which situation is advection fog most likely to form?

- A) A warm moist air mass on the windward side of mountains
- B) An air mass moving inland from the coast in winter
- C) A light breeze blowing colder air out to sea
- D) Warm moist air setting over a warmer surface under no wind conditions

128- What type of fog depend upon a wind in order to exist?

- A) Radiation fog and ice fog
- B) Precipitation fog and steam fog
- C) Upslope fog and down slope fog
- D) Advection fog and upslope fog

129- If high humidity or visible moisture is present in which temperature range would you expect to encounter the most severe structural icing?

- A) 0°C to -10°C
- B) -10°C to -15°C
- C) -15°C to -25°C
- D) -20°C to -30°C

130- In which environment is aircraft structural ice most likely to have the highest accumulation rate?

- A) Cumulus clouds
- B) Cirrus clouds
- C) Stratus clouds
- D) Freezing rain

131- What is the reason of ice pellets at 8000 ft?

- A) Freezing rain at higher altitude
- B) You are approaching an area of thunderstorms
- C) You will encounter hail if you continue your flight
- D) The formation of low clouds and fog

132- What is an operational consideration if you fly into freezing rain?

- A) You have flown into an area of thunderstorms
- B) Temperatures are above freezing at some higher altitude
- C) You have flown through a cold front
- D) If you descend you will fly out of this icing condition

133- What conditions are necessary for the formation of a thunderstorm?

- A) Frontal activity cumulus clouds and sufficient moisture
- B) Cumulus clouds unbalance of static electricity
- C) Sufficient heat moisture and electricity
- D) Lifting action unstable air and sufficient moisture

134- What visible signs indicate extreme turbulence in thunderstorms?

- A) Cumulonimbus clouds very frequent lightning and roll clouds
- B) Base of the clouds close to the surface heavy rain and hail
- C) Low ceiling and visibility hail and precipitation static
- D) Lightning roll clouds low ceilings and visibility and precipitation static

135- Which thunderstorms generally produce the most severe conditions such as heavy hail and destructive winds?

- A) Warm front thunderstorms
- B) Squall line thunderstorms
- C) Nocturnal air mass thunderstorms
- D) Daytime air mass thunderstorms

136- If you fly into severe turbulence, you should attempt to maintain?

- A) Constant altitude
- B) Level flight attitude
- C) Constant airspeed (V_A)
- D) Constant altitude and constant airspeed

137- Which weather phenomena is always associated with a thunderstorm?

- A) Lightning
- B) Heavy rain showers
- C) Super cooled raindrops
- D) Hail

138- Which condition may tend to lift advection fog into low stratus clouds?

- A) Surface winds of approximately 15 knots or stronger
- B) Dryness of the under lying land mass
- C) Night time cooling
- D) Heating from adjacent industrial areas

139- Freezing rain encountered during climb is normally evidence that:

- A) There exists layer of warmer air aloft
- B) A climb can be made to higher altitude without encountering more than light icing
- C) A cold front has passed
- D) There are thunderstorms in the area

140- At approximately what altitude above the surface would you expect the base of cumuliform clouds if the surface air temperature is 82°F and the dew point is 54°F?

- A) 5300 ft AGL
- B) 6300 ft AGL
- C) 7000 ft AGL
- D) 8000 ft AGL

141- Which thunderstorms generally produce the most severe conditions such as heavy hail and destructive winds?

- A) Warm front thunderstorms
- B) Squall line thunderstorms
- C) Nocturnal air mass thunderstorms
- D) Day time air mass thunderstorms

142- What conditions are necessary for the formation of a thunderstorm?

- A) Frontal activity cumulus clouds and sufficient moisture
- B) Cumulus clouds unbalance of static electricity and turbulence
- C) Sufficient heat moisture and electricity
- D) Initial lifting action unstable air and sufficient moisture

143- Which weather phenomenon is the indication of the mature stage of a thunder storm?

- A) The appearance of an anvil top
- B) The start of rain at the surface
- C) Growth rate of cloud is maximum
- D) Strong turbulence in the cloud

144- What is the embedded thunderstorms?

- A) Thunderstorms have been visually sighted
- B) Severe thunderstorms are embedded within a squall line
- C) Thunderstorms are predicated to develop in stable air mass
- D) Thunderstorms are obscured by massive cloud layers and cannot be seen

145- Which of the following are high altitude clouds?

- A) Cirrostratus
- B) Altostratus
- C) Nimbostratus
- D) Altocumulus

146- Clouds are divided into four families according to their:

- A) Out ward shape
- B) Height range
- C) Composition
- D) Origin

147- Steady precipitation in contrast to showers preceding a front is an indication of:

- A) Cumuliform clouds with moderate turbulence
- B) Stratiform clouds with moderate turbulence
- C) Cumuliform clouds with little or no turbulence
- D) Stratiform clouds with little or no turbulence

148- What are the characteristics of stable air?

- A) Good visibility showery precipitation and cumulus type clouds
- B) Poor visibility intermittent precipitation and cumulus type clouds
- C) Good visibility steady precipitation and stratus type clouds
- D) Poor visibility steady precipitation and stratus type clouds

149- Which of the following combinations of weather producing cumuliform type of clouds, good visibility, showery rain and clear icing?

- A) Stable moist air and orographic
- B) Unstable moist air and no lifting mechanism
- C) Stable dry air lifting action
- D) Unstable moist air lifting action

150- What is the most rapid method for water droplets to increase in size?

- A) Condensation
- B) Sublimation
- C) Droplets colliding and merging together
- D) Evaporation

151- Frontal activity can produce fog which is the result of:

- A) Nocturnal cooling
- B) Evaporation of surface moisture
- C) Evaporation of precipitation on surface
- D) Adiabatic cooling

152- Which feature is associated with the tropopause?

- A) Absence of wind and turbulent conditions
- B) Absolute upper limit of cloud formation
- C) Abrupt change in temperature lapse rate
- D) Constant height above the earth

153- The location of steam fog would most likely occur are:

- A) Maritimes
- B) Mountain valleys
- C) Level inland areas
- D) Mountain slope

154- Which weather phenomenon is always associated with the passage of a frontal system?

- A) Cloud coverage increases
- B) Precipitation increases
- C) Abrupt temperature change
- D) Change in wind direction

155- What type of clouds will be formed if very stable moist air is forced upslope?

- A) First stratified clouds and then vertical clouds
- B) First vertical clouds and then stratified clouds
- C) Vertical clouds with increasing height
- D) Stratified clouds with little vertical development

156- Clouds fog or dew will always form when:

- A) The temperature and dew point are equal
- B) Water vapor condenses
- C) The dew point is higher than the temperature
- D) Relative humidity exceeds 100 percent

157- Evaporate of precipitation trailing beneath clouds before reaching the ground are called:

- A) Virga
- B) Corposant
- C) Corona
- D) Foehn

158- Where is the common location of advection fog?

- A) Coastal areas
- B) Mountain slopes
- C) Level inland areas
- D) Mountain valleys

159- Which conditions result in the formation of frost?

- A) The temperature of the collecting surface is at or below freezing and small droplets of moisture are falling
- B) When dew forms and the temperature is below freezing
- C) Temperature of the collecting surface is below the dew point of surrounding air and the dew point is colder than freezing
- D) Small drops of moisture falling on the collecting surface when the surrounding air temperature is at or below freezing

160- Which of the following is true concerning the troposphere?

- A) It is relatively free of all weather
- B) It is the dividing line between the stratosphere and the atmosphere
- C) It is thicker over the equator than over the poles
- D) It extends to a uniform height at all latitudes

161- Turbulence with cumuliform above 15,000 ft AGL not associated with cumuliform cloudiness including thunderstorms should be reported as:

- A) Convective
- B) Severe turbulence
- C) Orographic turbulence
- D) Clear air turbulence

162- Which weather condition can be expected when moist air flows from a relatively warm surface to colder surface?

- A) Cumulus clouds
- B) Increased visibility
- C) Convective turbulence due to surface heating
- D) Fog or low stratus clouds

163- Fair weather cumulus clouds often indicate:

- A) Turbulence at and below the cloud level
- B) Poor visibility
- C) Smooth flying conditions
- D) A normal lapse rate

164- Moist stable air flowing upslope can be expected to:

- A) Produce stratus type of clouds
- B) Produce mountain turbulence
- C) Cause showers and thunder storms
- D) Develop convective turbulence

165- Which environment has highest accumulation rate of icing?

- A) Cumulonimbus clouds
- B) High humidity and freezing temperature
- C) Heavy wet snow
- D) Freezing rain

166- What are the requirements for the formation of a thunderstorm?

- A) Sufficient water vapor and a lifting action
- B) A cumulus cloud with sufficient moisture
- C) A cumulus cloud with sufficient moisture and an inverted lapse rate
- D) Sufficient moisture an unstable lapse rate and lifting action

167- During the life cycle of a thunderstorm which stage is characterized predominately by down drafts?

- A) Cumulus
- B) Dissipating
- C) Mature
- D) Anvil

168- What feature is normally associated with the cumulus stage of a thunderstorm?

- A) Roll cloud
- B) Continuous updraft
- C) Frequent lightning
- D) Beginning of rain at the surface

169- Frontal waves normally form on:

- A) Slow moving cold fronts or stationary fronts
- B) Slow moving warm fronts or occluded fronts
- C) Rapidly moving cold fronts or warm fronts
- D) Stationary fronts or occluded fronts

170- Where “St. Elmo’s fire” is usually encountered?

- A) In dry air
- B) While penetrating a warm front
- C) Along coastal areas in clean air
- D) In the vicinity of thunderstorms while in precipitation

171- The average height of the troposphere in the mid-latitudes is:

- A) 20,000 ft
- B) 25,000 ft
- C) 36,000 ft
- D) 65,000 ft

172- In which situation is advection fog most likely to form?

- A) A warm moist air mass on the wind ward side of mountains
- B) An air mass moving inland from the coast in winter
- C) A light breeze blowing colder air out to sea
- D) Warm moist air settling over a warmer surface under no wind conditions

173- Which is a characteristic of stable air?

- A) Fair weather cumulus clouds
- B) Light or no wind
- C) Unlimited visibility
- D) Rapid temperature decrease with altitude

174- What types of fog depend upon a wind in order to exist?

- A) Radiation fog and ice fog
- B) Steam fog and down slope fog
- C) Precipitation induced fog and ground fog
- D) Advection fog and upslope fog

175- Advection fog has drifted over coastal airport during the day, what may tend to dissipate or lift this fog into low stratus clouds?

- A) Temperature inversion
- B) Night time cooling
- C) Wind 15 knots or stronger
- D) Surface radiation

176- An air mass is a body of air that:

- A) Has similar cloud formations associated with it
- B) Creates a wind shift as it moves across the earth's surface
- C) Covers an extensive area and has fairly uniform properties of temperature and moisture
- D) Has extensive turbulence associated with thunderstorm

177- A high cloud is composed mostly of:

- A) Hail
- B) Ozone
- C) Condensation nuclei
- D) Ice crystals

178- What is a characteristic of the troposphere?

- A) It extends to its greatest height over the poles
- B) It is the second atmospheric layer above the earth
- C) There is an overall decrease of temperature with an increase in altitude
- D) The average altitude of the top of the troposphere is about 4 miles

179- Unsaturated air flowing upslope will cool at the rate of about:

- A) 1°C per 1,000 ft
- B) 3°C per 1,000 ft
- C) 2.5°C per 1,000 ft
- D) 4.4°C per 1,000 ft

180- Most of the earth's clouds and weather will be encountered in the:

- A) Tropopause
- B) Stratosphere
- C) Mesosphere
- D) Troposphere

181- Which are characteristics of a cold air mass moving over a warm surface?

- A) Cumuliform clouds, turbulence and poor visibility
- B) Cumuliform clouds, turbulence and good visibility
- C) Stratiform clouds, smooth air and poor visibility
- D) Stratiform clouds, turbulence and good visibility

182- Which family of clouds is least likely to contribute to structural icing on an aircraft?

- A) Low clouds
- B) Middle clouds
- C) High clouds
- D) Clouds with extensive vertical development

183- How does a water droplet or ice crystal continue to grow once it has formed?

- A) Condensation or sublimation
- B) Thermal heating action
- C) Adjective cooling
- D) Sublimation or evaporation

184- A temperature inversion is a condition which exists only in:

- A) Stable air
- B) Winter
- C) Summer
- D) Unstable air

185- What is the primary reason of the earth's weather changes?

- A) Proximity of large air masses
- B) Rotation of the earth on its axis
- C) Differences in temperature creating differences in pressure
- D) The angle at which the sun's rays penetrate the atmosphere

186- The meteorological term COL may be defined as:

- A) An elongated area of low pressure along a line of maximum cyclonic curvature
- B) The neutral area between two highs and two lows
- C) An anti-cyclonic curvature of isobars centering on a high pressure anomaly
- D) The intersection of two low pressure troughs

187- Which term applies when the temperature of the air changes by compression or expansion but no heat is added or removed?

- A) Katabatic
- B) Coriolis
- C) Advection
- D) Adiabatic

188- Moisture is removed from a parcel of air by two processes these are:

- A) Sublimation and heating
- B) Super saturation and evaporation
- C) Heating and condensation
- D) condensation and sublimation

189- Every physical process of weather is the result of:

- A) The movement of air
- B) A pressure differential
- C) A heat exchange
- D) Moisture

190- Which statement is true regarding actual air temperature and dew point temperature spread?

- A) The temperature spread decreases as the relative humidity decreases
- B) The temperature spread decreases as the relative humidity increases
- C) The temperature spread increases as the relative humidity increases
- D) The temperature and dew point spread are not related to relative humidity

191- The average altitude for 500 millibar pressure level is:

- A) 18,000 ft
- B) 13,000 ft
- C) 10,000 ft
- D) 25,000 ft

192- Which of the following would decrease the stability of an air mass?

- A) Warming from below
- B) Cooling from below
- C) Decrease in water vapor
- D) Sinking of the air mass

193- From which measurement of the atmosphere can stability be determined?

- A) Surface temperature
- B) The dry adiabatic lapse rate
- C) The environment lapse rate
- D) Atmospheric pressure

194- Which of the following cloud types would indicate convective turbulence?

- A) Altocumulus standing lenticular clouds
- B) Nimbostratus clouds
- C) Towering cumulus clouds
- D) Cirrus clouds

195- Turbulence that is encountered above 15,000 AGL not associated with cumuli-form cloudiness including thunderstorms should be reported as:

- A) Convective turbulence
- B) Severe turbulence
- C) Orographic turbulence
- D) Clear air turbulence

196- Frontal activity can produce fog which is a result of:

- A) Nocturnal cooling
- B) Evaporation of surface moisture
- C) Evaporation of precipitation on surface
- D) Adiabatic cooling

197- What is the important characteristic of wind shear?

- A) It usually exists only in the vicinity of thunderstorms but may be found near a strong temperature inversion
- B) It can be present at any level and can exist in both a horizontal and vertical direction
- C) It occurs primarily at the lower levels and is usually associated with mountain wave
- D) It exists in horizontal direction only and is normally found near a jet stream

198- What is the important characteristic of wind shear?

- A) It is encountered most frequently near mountain waves during winter months
- B) It is an atmospheric condition that is associated exclusively with zones of convergence
- C) The Coriolis phenomenon in both high and low level air masses is the principal generating force
- D) It is an atmospheric condition that may be associated with a low level temperature inversion a jet stream or a frontal zone

199- Hazardous wind shear is commonly encountered near the ground

- A) Near thunderstorms and during periods when the wind velocity is stronger than 35kts
- B) During periods when the wind velocity is stronger than 35 kts and near mountain valleys
- C) During periods of strong temperature inversion and near thunderstorms
- D) Near mountain valleys and on the wind ward side of a hill or mountain

200- What feature is normally associated with the cumulus stage of thunderstorm?

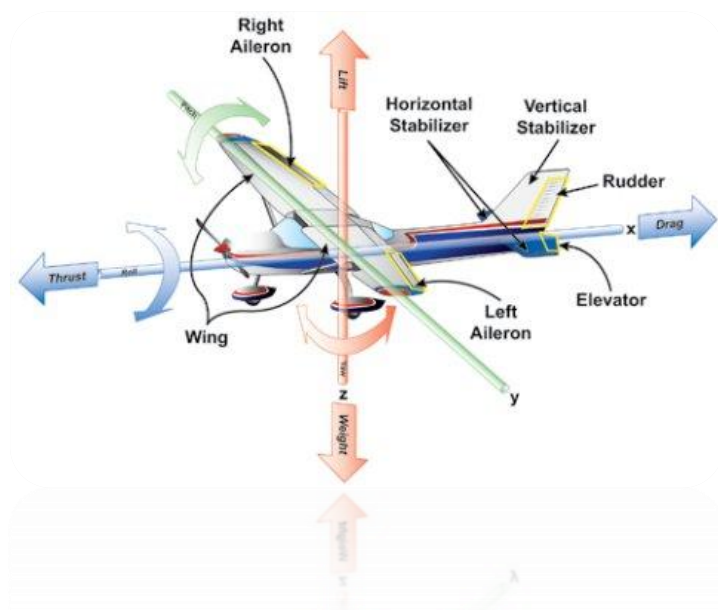
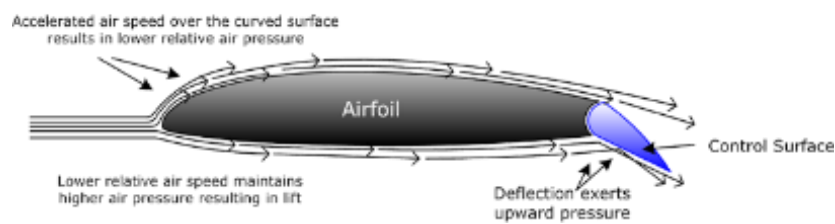
- A) Roll cloud
- B) Continuous up draft
- C) Frequent lightning
- D) Beginning of rain at the surface

Question	Answer	Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	D	41	D	81	D	121	B	161	D
2	A	42	A	82	D	122	C	162	D
3	A	43	D	83	A	123	A	163	A
4	D	44	A	84	D	124	B	164	A
5	A	45	B	85	B	125	D	165	D
6	A	46	D	86	D	126	A	166	D
7	B	47	A	87	D	127	B	167	B
8	C	48	C	88	C	128	D	168	B
9	B	49	B	89	A	129	A	169	A
10	C	50	C	90	C	130	D	170	D
11	D	51	D	91	D	131	A	171	C
12	D	52	C	92	A	132	B	172	B
13	A	53	A	93	A	133	D	173	B
14	B	54	B	94	A	134	A	174	D
15	B	55	A	95	C	135	B	175	C
16	D	56	D	96	B	136	B	176	C
17	C	57	B	97	B	137	A	177	D
18	A	58	A	98	B	138	A	178	C
19	A	59	C	99	B	139	A	179	B
20	A	60	C	100	B	140	B	180	D
21	A	61	B	101	B	141	B	181	B
22	D	62	C	102	B	142	D	182	C
23	D	63	C	103	C	143	B	183	A
24	C	64	A	104	A	144	D	184	A
25	B	65	D	105	D	145	A	185	C
26	C	66	C	106	B	146	B	186	B
27	B	67	C	107	B	147	D	187	D
28	B	68	B	108	A	148	D	188	D
29	A	69	D	109	C	149	D	189	C
30	C	70	D	110	D	150	C	190	B
31	B	71	A	111	A	151	C	191	A
32	D	72	D	112	C	152	C	192	A
33	C	73	C	113	B	153	A	193	C
34	A	74	D	114	A	154	D	194	C
35	A	75	B	115	B	155	D	195	D
36	B	76	D	116	A	156	B	196	C
37	D	77	D	117	A	157	A	197	B
38	A	78	A	118	A	158	A	198	D
39	A	79	B	119	D	159	C	199	C
40	A	80	A	120	B	160	C	200	B

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Principles of Flight

Asymmetrical Airfoil Lift and Control Surface Deflection



1- The airfoil chord is:

- A) A straight line from the wing leading edge to the trailing edge.
- B) A line equidistant from the upper and lower wing surfaces.
- C) A line tangential to the wing surface at the point of maximum curvature.
- D) A line drawn at 15% chord from the root to the tip.

2- The term angle of attack in a two dimensional flow is defined as:

- A) The angle for maximum lift/drag ratio.
- B) The angle between the aeroplane climb path and the horizon.
- C) The angle formed by the longitudinal axis of the aeroplane and the chord line of the wing.
- D) The angle between the wing chord line and the direction of the relative airflow.

3- The aspect ratio of the wing:

- A) Is the ratio between the wingspan and the root chord.
- B) Is the ratio between the wingspan and the mean geometric chord.
- C) Is the ratio between the tip chord and the wingspan.
- D) Is the ratio between chord and root chord.

4- Drag is acting in the direction of Lift is perpendicular to the

- A) Chord line
- B) Relative wind (airflow)
- C) Horizon
- D) Longitudinal axis

5- Dihedral of the wing is:

- A) The angle between the 0.25 chord line of the wing and the vertical axis.
- B) The angle between the leading edge of the wing and the lateral axis.
- C) The angle between the plane of the wing and the lateral axis.
- D) The angle between the 0.25 chord line of the wing and the horizon.

6- Which one of the following statements about Bernoulli's theorem is correct?

- A) The dynamic pressure is maximum in the stagnation point.
- B) The dynamic pressure decreases as static pressure decreases.
- C) The total pressure is zero when the velocity of the stream is zero.
- D) The dynamic pressure increases as static pressure decreases.

7- A wing has a span of 50 feet and an area of 200 square feet. It means chord would be:

- A) 4 feet
- B) 10 feet
- C) 7.5 feet
- D) 2.5 feet

8- Dynamic pressure is:

- A) The total pressure at a point where the moving air stream is brought to rest.
- B) The amount by which the pressure rises at a point where a moving air stream is brought to rest.
- C) The pressure due to the weight of the atmosphere in still air.
- D) The pressure change caused by heating when a moving air stream is brought to rest.

9- Aspect ratio is:

- A) The ratio of the mean chord to the maximum wing thickness.
- B) The ratio of the wingspan to the square of the mean chord.
- C) The ratio of the wingspan to the mean chord.
- D) The ratio of the wingspan to the wing area.

10- A moment is:

- A) The product of a force and the distance through which it acts. The distance in the moment is merely a leverage and no movement is involved.
- B) The product of a force and the distance through which it moves.
- C) The product of the application of a force.
- D) The vector quantity of a lever.

11- The CAS is the IAS corrected for:

- A) Position and instrument error.
- B) Position, instrument and compressibility error.
- C) Compressibility and density error.
- D) Position, instrument, compressibility and density error.

12- A wing is said to be tapered if:

- A) It is inclined upwards from root to tip.
- B) The chord at the wingtip is less than the chord at the root.
- C) The incidence at the tip is less than at the root.
- D) The camber is increased at the wingtip.

13- A wing has a mean chord of 6 meters and a span of 30 meters. The aspect ratio is: .

- A) 5 to 1.
- B) 30 to 1.
- C) 180 to 1.
- D) 6 to 1.

14- Density of the atmosphere will:

- A) Increase with rising humidity.
- B) Decrease with rising humidity.
- C) Remain unaffected by changes in humidity.
- D) Decrease with reduced humidity.

15- A line from the center of curvature of the leading edge to the trailing edge, equidistant from the top and bottom wing surface is:

- A) Mean camber line.
- B) Upper camber line.
- C) Mean chord.
- D) Mean Aerodynamic Chord.

16- Which of the following is the correct definition of aspect ratio?

- A) Span divided by tip chord.
- B) Chord divided by span.
- C) Span divided by mean chord.
- D) Chord divided by span, measured at the 25% chord position.

17- If a steady stream of air flows through a venture throat, its velocity will and static pressure will:

- A) Increase; rise
- B) Decrease; fall
- C) Decrease; rise
- D) Increase; fall

18- When air is compressed, the number of molecules in a given volume and density

- A) Decreases; rises
- B) Decreases; drops
- C) Increases; drops
- D) Increases; rises

19- The force which acts at right angles to the relative airflow is called:

- A) Thrust
- B) Total reaction
- C) Drag
- D) Lift

20- For a given quantity of air, if pressure and temperature remain the same and humidity is increased the air will become:

- A) More dense.
- B) Less dense.
- C) Neither more or less dense.
- D) Incompressible.

21- Which ratio is defined as the "aspect ratio" of a wing?

- A) Ratio between wingspan and gross wing area.
- B) Ratio between span and mean chord.
- C) Ratio between the span and the square of the gross wing area.
- D) Ratio between the square of the span and the mean chord.

22- The characteristics of a "high aspect ratio" wing are:

- A) Short chord, long span.
- B) Long span, long chord.
- C) Long chord, short span.
- D) Short chord, short span.

23- The wing area divided by the span of a wing is called:

- A) Mean chord.
- B) Fineness ratio.
- C) Wash out.
- D) Aspect ratio.

24- As it applies to airfoils, which statement is in agreement with Bernoulli's principle?

- A) The speed of a fluid increases at points where the static pressure of the fluid increases.
- B) The static pressure of a fluid decreases at points where the speed of the fluid increases.
- C) The static pressure of a fluid increases at points where the speed of the fluid increases.
- D) The static pressure of a fluid decreases at points where the speed of the fluid decreases.

25- If pressure is kept constant and temperature increases, the density will:

- A) Increases.
- B) Decreases.
- C) Remains constant.
- D) Has no effect.

26- One feature of a wing is the "Mean Chord" which is the:

- A) Wing area divided by the root chord.
- B) Wing area divided by the tip chord.
- C) Wing area divided by the span.
- D) Line equidistant from the upper and lower surfaces.

27- Which of the following is the greatest factor causing lift?

- A) Increased airflow velocity below the wing.
- B) Increased pressure below wing.
- C) Suction above the wing.
- D) Decreased airflow velocity above the wing.

28- The lift force acting on an airfoil:

- A) Is mainly caused by suction on the upper side of the airfoil.
- B) Increases proportional to the angle of attack until 40° .
- C) Is mainly caused by overpressure at the lower side of the airfoil.
- D) Is maximum at an angle of attack of 4° .

29- Lift is generated when:

- A) An airfoil is placed in a high velocity air stream.
- B) The shape of the airfoil is slightly cambered.
- C) A certain mass of air is accelerated downwards.
- D) A certain mass of air is retarded.

30- The point where the aerodynamic lift acts on a wing is:

- A) The CG location.
- B) The center of pressure.
- C) The point of maximum thickness of the wing.
- D) The suction point of the wing.

31- The point where the single resultant aerodynamic force acts on an airfoil is called:

- A) Neutral point.
- B) Centre of gravity.
- C) Centre of pressure.
- D) Aerodynamic center.

32- As air flows into the converging section of a venturi:

- A) Static pressure decreases, velocity increases, mass flow decreases.
- B) Static pressure increases, velocity decreases, mass flow is constant.
- C) Static pressure decreases, velocity increases, mass flow is constant.
- D) Static pressure decreases, velocity decreases, mass flow decreases.

33- The center of pressure of an airfoil is:

- A) The point where the pressure on the upper surface of the wing is lowest.
- B) The center of gravity of the airfoil.
- C) The point where the pressure on the lower surface of the wing is highest.
- D) The point on the chord line where the resultant lift force acts.

34- Compared to the relative airflow, air on top of a wing:

- A) Static pressure increases, velocity decreases.
- B) Static pressure increases, velocity increases.
- C) Static pressure decreases, velocity decreases.
- D) Static pressure decreases, velocity increases.

35- An airfoil which is producing lift will have:

- A) Up wash ahead of the wing and downwash behind it.
- B) Up wash ahead of the wing but no deflection of the airflow behind it.
- C) No deflection of the airflow ahead of the wing but downwash behind it.
- D) No deflection of the airflow either ahead or behind the airfoil.

36- Downwash is:

- A) The decrease in the angle of incidence from root to tip of the wing.
- B) The higher speed airspeed behind the propeller.
- C) The downward deflection of the airflow behind the wing.
- D) The downward slope of a wing from root to tip.

37- As the air flows over the upper surface of a wing:

- A) Its speed increases and total pressure decreases.
- B) Its speed increases and static pressure decreases.
- C) Its speed decreases and static pressure decreases.
- D) Its speed increases and dynamic pressure decreases.

38- An airfoil produces lift by:

- A) Airflow velocity decreasing over the upper surface decreasing the pressure and increasing across the lower surface increasing the pressure.
- B) Airflow velocity increasing over the upper surface decreasing the pressure and decreasing across the lower surface increasing the pressure.
- C) Airflow velocity decreasing over the upper surface increasing the pressure and increasing across the lower surface decreasing the pressure.
- D) Airflow velocity increasing over the upper surface increasing the pressure and decreasing across the lower surface decreasing the pressure.

39- The Centre of Pressure of an airfoil section is:

- A) Where the resultant of all the centrifugal forces acts relative to the shape of the airfoil.
- B) Where the largest component of lift is said to be produced.
- C) The point on the chord line through which the resultant of all aerodynamic forces acts.
- D) The point about which the airflow is deflected around the airfoil.

40- At zero angle of attack in flight, a symmetrical wing section will produce:

- A) Some lift and drag.
- B) Zero lift with some induced and profile drag.
- C) Zero lift and drag.
- D) Zero lift with some drag.

41- Which one of the following statements about the lift to drag ratio in straight and level flight is correct?

- A) At the highest value of the lift /drag ratio the total drag is lowest.
- B) The highest value of the lift/drag ratio is reached when the lift is zero.
- C) The lift/drag ratio always increases as the lift decreases.
- D) The highest value of the lift/drag ratio is reached when coefficient of lift is at maximum.

42- Which statement is correct regarding C_L (lift coefficient) and α (angle of attack)?

- A) For a symmetrical airfoil section, if the α is zero, C_L is zero.
- B) For a symmetrical airfoil section, if the α is zero, C_L is not zero.
- C) For an asymmetrical airfoil section, if the α is zero, C_L is zero.
- D) For an asymmetrical airfoil section with positive camber, just before zero lift α , C_L is negative.

43- A symmetrical airfoil set at zero angle of attack in an air stream will produce:

- A) Lift and drag.
- B) No lift and no drag.
- C) Lift but no drag.
- D) Drag but no lift.

44- An asymmetrical airfoil at zero degree angle of attack will, in level flight produce:

- A) Most of its lift on the lower surface.
- B) Most of its lift on the upper surface.
- C) The same amount of lift on the upper and lower surfaces.
- D) Zero lift.

45- When considering the coefficient of lift and angle of attack of airfoil sections:

- A) A symmetric section at zero angle of attack will produce a small positive coefficient of lift.
- B) An asymmetric section at zero angle of attack will produce zero coefficient of lift.
- C) A symmetric section at zero angle of attack will produce zero coefficient of lift.
- D) Airfoil section symmetry has no effect on lift coefficient.

46- Considering the lift to drag ratio, in straight and level flight which of the following is correct?

- A) L/D is maximum at the speed for minimum total drag.
- B) L/D decreases with increasing lift.
- C) L/D is maximum when lift equals weight.
- D) L/D is maximum when lift equals zero.

47- The effects of increased pressure would be:

- A) Increased lift and drag.
- B) Decreased lift and drag.
- C) Have no effect on lift and drag.
- D) Increased lift and decreased drag.

48- The lift coefficient of an airfoil section:

- A) Increases with an increase in angle of attack up to the stall.
- B) Is at its maximum value at that angle of attack giving the maximum lift to drag ratio.
- C) Changes with density.
- D) Changes with the square of velocity of the airflow.

49- C_L varies with:

- A) Pressure.
- B) Density.
- C) Velocity.
- D) Angle of attack.

50- Which of the following is the cause of wingtip vortices?

- A) Air spilling from the top surface to the bottom surface at the wing tip.
- B) Air spilling from the bottom surface to the top surface at the wing tip.
- C) Air spilling from the bottom surface to the top surface at the left wing tip and from the top surface to the bottom surface at the right wing tip.
- D) Span wise flow vector from the tip to the root on the bottom surface of the wing.

51- Induced drag is caused by:

- A) Increased pressure at the leading edge stagnation point.
- B) Wing mounted fuel tanks.
- C) Wingtip vortices and downwash.
- D) Wing lets and washout.

52- With flaps deployed, at a constant IAS in straight and level flight, the magnitude of tip vortices:

- A) Increases.
- B) Increases or decreases depending upon the initial angle of attack.
- C) Decreases.
- D) Remains the same.

53- Which location on aeroplane has the largest effect on the induced drag?

- A) Wing root junction.
- B) Engine cowling.
- C) Wingtip.
- D) Landing gear.

54- The relationship between induced drag and the aspect ratio is:

- A) A decrease in the aspect ratio increases the induced drag.
- B) There is no relationship.
- C) Induced drag = 1.3 aspect ratio value.
- D) An increase in the aspect ratio increases the induced drag.

55- What is the effect of high aspect ratio of an aeroplane's wing on induced drag?

- A) It is unaffected because there is no relation between aspect ratio and induced drag.
- B) It is increased because high aspect ratio produces greater downwash.
- C) It is reduced because the effect of wingtip vortices is reduced.
- D) It is increased because high aspect ratio has greater frontal area.

56- The induced angle of attack is the result of:

- A) Downwash due to tip vortices.
- B) A large local angle of attack in a two dimensional flow.
- C) Downwash due to flow separation.
- D) Change in direction of flow due to the effective angle of attack.

57- For an aircraft in level flight, induced drag:

- A) Would be less if the aspect ratio was increased.
- B) Would be greater if the aspect ratio was increased.
- C) Would be less if the weight was increased.
- D) Would be independent of aspect ratio.

58- For a rectangular wing at constant angle of attack, induced drag:

- A) Will be uniform across the wingspan.
- B) Will be greatest at the wingtip.
- C) Will be greatest at the wing root.
- D) Will be greatest at the inboard end of the wing root.

59- The nose up or nose down orientation of an aircraft relative to the horizon is known as:

- A) The angle of attack.
- B) The angle of incidence.
- C) The attitude of the aircraft.
- D) The angle between the relative airflow and the chord line of the wing.

60- At positive angles of attack, a wing produces most lift at:

- A) 4° angle of attack.
- B) Wings level.
- C) Just before the stall.
- D) Just after the stall.

61- When are the wingtip vortices created?

- A) When the aeroplane starts.
- B) When the wing produces lift.
- C) Only in aeroplanes with a short wingspan.
- D) When the aeroplane lands.

62- At the tip of the wing in level flight, the air flows:

- A) From the upper surface to the lower surface.
- B) From the lower surface to the upper surface and then down at the trailing edge.
- C) From the lower surface to the upper surface and then diverges away from the fuselage.
- D) To produce induced drag at its lowest value.

63- Wingtip vortices have the highest intensity during:

- A) Takeoff.
- B) Cruise.
- C) High speed.
- D) Turns.

64- The aeroplane drag in straight and level flight is lowest when the:

- A) Parasite drag equals twice the induced drag.
- B) Parasite drag is equal to the induced drag.
- C) Induced drag is equal to zero.
- D) Induced drag is lowest.

65- The interference drag is created as a result of:

- A) Separation of the induced vortex.
- B) The addition of induced and parasite drag.
- C) Interaction between airplanes parts.
- D) Downwash behind the wing.

66- In what way do (i) induced drag and (ii) parasite drag alter with increasing speed (speeds above V_{MD})?

- A) (i)Decreases; (ii) increases.
- B) (i)Increases; (ii) increases.
- C) (i)Decreases; (ii) decreases.
- D) (i)Increases; (ii) decreases.

67- If landing gear is lowered:

- A) Total drag increases and V_{MD} decreases.
- B) Total drag increases and V_{MD} increases.
- C) Total drag is the same and V_{MO} increases.
- D) Total drag increases and V_{MD} is the same.

68- The minimum total drag of an aircraft in flight occurs:

- A) At the stalling speed.
- B) At the speed where parasite drag and induced drag are equal.
- C) At the speed where induced drag is least.
- D) At the speed where parasite drag is least.

69- The purpose of streamlining is:

- A) To reduce form drag.
- B) To reduce induced drag.
- C) To increase lift.
- D) To reduce skin friction drag.

70- If speed is reduced from 300 kts to 150 kts the parasite drag will be:

- A) Doubled.
- B) Half.
- C) A quarter.
- D) A third.

71- At high speed an aircraft will have:

- A) More profile drag than induced drag.
- B) More induced drag than profile drag.
- C) About the same profile drag as induced drag.
- D) Only induced drag.

72- If the weight of an aircraft is increased, the minimum drag speed (V_{MD}):

- A) Will be the same but occurs at a higher angle of attack.
- B) Will be the same and occurs at the same angle of attack.
- C) Will be increased.
- D) Will be decreased.

73- What is the effect on induced drag on entering the ground effect?

- A) Induced drag increases, but profile drag decreases.
- B) Induced drag remains the same.
- C) Induced drag decreases.
- D) Induced drag increases.

74- Ground effect is most likely to result in which problem?

- A) Deep stall.
- B) Hard landings.
- C) Becoming airborne before reaching recommended takeoff speed.
- D) Inability to get airborne even though airspeed is sufficient for normal takeoff needs.

75- Ground effect occurs:

- A) It acts like a decrease in aspect ratio.
- B) It is only effective up to 1 wingspan from the ground.
- C) During the approach to landing.
- D) It aids landing by increasing the induced drag.

76- What will happen in ground effect?

- A) An increase in strength of the wingtip vortices.
- B) The wing downwash on the tail surfaces increases.
- C) The induced angle of attack and induced drag decreases.
- D) A significant increase in thrust required.

77- On entering ground effect, maintaining flight at the same speed:

- A) Ground effect has no effect on power.
- B) Less power is required.
- C) More power is required.
- D) Lift decreases.

78- What effect on induced drag does entering ground effect have?

- A) Increase.
- B) Decrease.
- C) Remain the same.
- D) Induced drag will increase, but profile drag will decrease.

79- If an airplane flies in the ground effect:

- A) Drag and lift are reduced.
- B) The aircraft will be partially supported on a cushion of air.
- C) The induced angle of attack is increased.
- D) The lift is increased and the drag is decreased.

80- Floating due to ground effect during an approach to land will occur:

- A) At a speed approaching the stall.
- B) When the height is less than twice the length of the wingspan above the surface.
- C) When a higher than normal angle of attack is used.
- D) When the height is less than half of the length of the wingspan above the surface.

81- What must a pilot be aware of as a result of ground effect?

- A) Wingtip vortices increase, creating wake turbulence problems for arriving and departing aircraft.
- B) Induced drag decreases, and any excess speed in the flare may cause floating.
- C) A full stop landing will require less up elevator deflection than when free of ground effect.
- D) Ground effect is due to a cushion of air generated by a landing aircraft when very close to the ground.

82- An aeroplane is usually affected by ground effect at what height above the surface?

- A) Twice the aero plane's wingspan above the surface.
- B) 3 to 4 times the aircraft's wingspan.
- C) Less than half the aircraft's wingspan above the surface.
- D) Only after the main wheels touch the ground.

83- When an aeroplane is in ground effect:

- A) Drag and lift are both increased.
- B) Drag is increased, lift is decreased.
- C) Drag is decreased, lift is increased.
- D) Drag and lift are both decreased.

84- When the stall speed increases? (All other important factors are constant)

- A) Weight decreases.
- B) Pulling out of a dive.
- C) Spoilers are retracted.
- D) Minor altitude changes occur e.g. 0-10,000 ft.

85- Stall Speed in a turn is proportion to:

- A) The square root of the load factor.
- B) Weight.
- C) Lift.
- D) TAS squared.

86- At the point of stall:

- A) Lift decreases, drag decreases.
- B) Lift constant, drag increases.
- C) Lift decreases, drag increases.
- D) Lift decreases, drag constant.

87- When a pilot makes a turn in horizontal flight, the stall speed:

- A) Increases with flap extension.
- B) Increases with the square root of load factor.
- C) Decreases with increasing bank angle.
- D) Increases with the load factor squared.

88- Which of the following statements about the spin is correct?

- A) In the spin, airspeed continuously increases.
- B) An aeroplane is prone to spin when the stall starts at the wing root.
- C) During spin recovery the ailerons should be kept in the neutral position.
- D) Every aeroplane should be designed such that it can never enter a spin.

89- The stall speed:

- A) Increases with the length of the wingspan.
- B) Decreases with an increased weight.
- C) Does not depend on weight.
- D) Increases with an increased weight.

90- At the same weight, with the CG at its forward limit:

- A) V_s is lower, the stalling angle is unchanged.
- B) V_s is higher, the stalling angle is greater.
- C) V_s is higher, the stalling angle is unchanged.
- D) V_s is lower, the stalling angle is less.

91- Where on the surface of a typical airfoil will flow separation normally start at high angles of attack?

- A) Lower side leading edge.
- B) Upper side trailing edge.
- C) Upper side leading edge.
- D) Lower side trailing edge.

92- Which of the following situations leads to a decreasing stall speed (IAS)?

- A) Increasing air density.
- B) Increasing load factor.
- C) Decreasing weight.
- D) Increasing altitude.

93- The critical angle of attack:

- A) Changes with an increase in gross weight.
- B) Remains unchanged regardless of gross weight.
- C) Increases if the CG is moved forward.
- D) Decreases if the CG is moved aft.

94- With the center of gravity on the forward limit, the stalling speed would be:

- A) Independent of the center of gravity position.
- B) Lower than with the center of gravity on the aft limit.
- C) Higher than with the center of gravity on the aft limit.
- D) The same as with the center of gravity on the aft limit.

95- A wing stalling angle is:

- A) Unaffected by a turn.
- B) Increased in a high rate of turn.
- C) Decreased in a high rate of turn.
- D) Decreased in any turn.

96- In a level banked turn, the stalling speed will:

- A) Decrease.
- B) Increase.
- C) Remain the same.
- D) Vary inversely with wing loading.

97- A low wing loading (aircraft weight has been reduced):

- A) Increases stalling speed.
- B) Increases takeoff run, stalling speed and landing speed.
- C) Decreases stalling speed and landing speed.
- D) Does not affect any of the above.

98- The load factor is:

- A) The ratio of lift to drag.
- B) The ratio of centripetal force to lift.
- C) The ratio of thrust to weight.
- D) The ratio of lift to weight.

99- The critical angle of attack at which a given aircraft stalls is depend on the:

- A) Gross weight.
- B) Attitude and airspeed.
- C) Design of the wing.
- D) Altitude.

100- An aircraft is said to stall when:

- A) The lift force from the wings is greater than the weight.
- B) The airflow over the top surface of the wing separates which results in a large increase in drag and a large loss of lift.
- C) The angle of attack of the wings is greater than 10 degrees.
- D) It flies too slowly at low altitude.

101- What affects the indicated stall speed?

- A) Angle of attack, weight, and air density.
- B) Load factor, angle of attack and power.
- C) Weight, load factor, CG position, power and Mach number.
- D) Humidity, air density and temperature.

102- A decrease in weight due to fuel consumption in flight will:

- A) Reduce the stalling speed, but the stall angle remains the same.
- B) Reduce the stalling speed and the stalling angle.
- C) Reduce the stalling angle and increase the stalling speed.
- D) Have no effect on the stall speed or angle.

103- In what flight condition must an aircraft be placed in order to spin?

- A) Stalled.
- B) Partially stalled with one wing low.
- C) In a steep diving spiral.
- D) A steep turn.

104- In a turn the stalling speed will be:

- A) Less than in level flight.
- B) More than in level flight but at a lower angle of attack.
- C) The same as in level flight.
- D) More than in level and at the same angle of attack.

105- What happens to stall speed with flaps down?

- A) Increases.
- B) Decreases.
- C) Remains constant.
- D) Depends on the degree of flap deflection.

106- The angle of attack at the stall:

- A) Increases with forward CG.
- B) Decreases with aft CG.
- C) Decrease with decrease in weight.
- D) Is not affected by changes in weight.

107- When the upper surface of an airfoil is predominantly covered in separated airflow the airfoil is:

- A) Descending.
- B) Climbing.
- C) Stalled.
- D) Retreating.

108- Indicated stalling speed with varying temperature.

- A) Varies
- B) Remains constant
- C) Decreases
- D) Increases

109- The type of flap which extends rearward from the trailing edge of the wing as it is lowered is called:

- A) A zap flap.
- B) A Fowler flap.
- C) A split flap.
- D) A Krueger flap.

110- When Fowler flaps are deployed?

- A) Only the area increases.
- B) They move backwards then downwards.
- C) They move downwards then backwards.
- D) They move forwards.

111- A plain flap will increase C_{LMAX} by:

- A) Increasing the camber of the airfoil.
- B) Increasing wing area.
- C) Boundary layer control.
- D) Centre of lift movement.

112- On a wing fitted with a fowler type trailing edge flap, the full extended position will produce:

- A) An unaffected wing area and increase in camber.
- B) An increase in wing area and camber.
- C) An unaffected C_D at a given angle of attack.
- D) An increase in wing area only.

113- If flaps are slightly asymmetric this would cause:

- A) A roll to a given bank angle which may be correctable with rudder.
- B) A steady rate of roll which may be correctable with ailerons.
- C) A steady rate of pitch which may be correctable with elevators.
- D) A roll to a given bank angle which may be correctable with ailerons.

114- Split flaps have the characteristic of:

- A) Increasing the lift and decreasing the drag for takeoff.
- B) Increasing the drag without appreciable increase in lift when moved from intermediate to fully down.
- C) Changing the main plane area and thus reducing the wing loading.
- D) Allowing optimum wing flexing.

115- If the trailing edge flaps are lowered and IAS kept constant, to maintain level flight:

- A) The nose must be lowered and thrust increased.
- B) The nose must be raised and thrust increased.
- C) Attitude and thrust must be kept constant.
- D) Attitude must be increased and thrust increased.

116- When a trailing edge flap is lowered during flight from takeoff position to fully down position, one will experience:

- A) A large increase in lift and a small increase in drag.
- B) A large increase in lift and a large increase in drag.
- C) A small increase in lift and a small increase in drag.
- D) A small increase in lift and a large increase in drag.

117- An airplane that has positive static stability:

- A) Is never dynamically stable.
- B) Is always dynamically stable.
- C) Can be dynamically stable, neutral or unstable.
- D) Is always dynamically unstable.

118- A statically unstable airplane is:

- A) Always dynamically stable.
- B) Never dynamically stable.
- C) Sometimes dynamically stable.
- D) Sometimes dynamically unstable.

119- One of the requirements for dynamic stability is:

- A) Positive static stability.
- B) A large deflection range of the stabilizer trims.
- C) A small CG range.
- D) Effective elevator.

120- Which of the following statements is correct?

- A) Dynamic stability means that after being displaced from original equilibrium condition, the airplane will return to that condition without oscillation.
- B) Static stability means that the airplane is also dynamically stable about the relevant axis.
- C) Dynamic stability is possible only when the airplane is statically stable about the relevant axis.
- D) A dynamically stable airplane would be almost impossible to fly manually.

121- Positive static stability of an airplane means that once it has been displaced the:

- A) Tendency will be to move with an oscillating motion of decreasing amplitude.
- B) Tendency will be to move with an oscillating motion of increasing amplitude.
- C) Initial tendency to move is towards its equilibrium position.
- D) Initial tendency to move is away from its equilibrium Position.

122- (Refer to figure P-30) The airplane motion, schematically illustrated in the figures, is an example of a dynamically:

- A) Unstable periodic motion.
- B) Indifferent periodic motion.
- C) Stable periodic motion.
- D) Indifferent a periodic motion.

123- If an aircraft has negative dynamic and positive static stability, this will result in:

- A) Undamped oscillations.
- B) Convergent oscillations.
- C) Divergent oscillations.
- D) Damped oscillations.

124- The sum of the moments in flight are movement would take place about:

- A) The CG.
- B) The neutral point.
- C) The maneuver point.
- D) The CP.

125- If a body is dynamically stable, any oscillations would be:

- A) Damped
- B) Divergent
- C) Neutral
- D) Contained

126- If an object is statically unstable, it will:

- A) Move in the direction of the displacement.
- B) Stop moving.
- C) Return to the original position.
- D) Oscillate.

127- Stability is:

- A) The ability of an aircraft to climb after being disturbed.
- B) The ability of an aircraft to turn about its axis.
- C) The tendency of an aircraft to return to its original condition of flight after a disturbance.
- D) Most difficult to achieve, in the yawing plane, in forward flight.

128- What is the effect of an aft shift of the center of gravity on (i) static longitudinal stability and (ii) the required control deflection for a given pitch change?

- A) (i) Reduces; (ii) increases.
- B) (i) Increases; (ii) increases.
- C) (i) Increases; (ii) reduces.
- D) (i) Reduces; (ii) reduces.

129- The effects of CG position on longitudinal static stability and control response will be:

- A) Forward movement of the CG will reduce stability and increase control response.
- B) Forward movement of the CG will reduce control response and increase stability.
- C) Rearward movement of the CG will increase stability and reduce control response.
- D) Rearward movement of the CG will reduce stability and control response.

130- An airplane with a CG location behind the center of pressure of the wing can only maintain a straight and level flight when the horizontal tail loading is:

- A) Zero.
- B) Upwards.
- C) Downwards.
- D) Upwards or downwards depending on elevator deflection.

131- If an aircraft has static longitudinal instability, it:

- A) Will be dynamically stable.
- B) May or may not be dynamically stable, depending on momentum and damping factors.
- C) Will be dynamically unstable.
- D) Will be dynamically stable only at low speed.

132- After a disturbance about the lateral axis, an aeroplane oscillates about the lateral axis at constant amplitude. The aeroplane is:

- A) Statically unstable - dynamically neutral.
- B) Statically unstable - dynamically stable.
- C) Statically stable - dynamically unstable.
- D) Statically stable - dynamically neutral.

133- If an aircraft has its CG ahead of its CP, in straight and level flight:

- A) There will normally be an upload on the tail plane.
- B) The tailplane will have a positive angle of attack.
- C) There will normally be a download on the tailplane.
- D) There will normally be no load on the tailplane.

134- Dynamic longitudinal stability requires:

- A) An effective elevator.
- B) A small CG range.
- C) Positive static longitudinal stability.
- D) A variable incidence (trimming) tailplane.

135- Which of the following components is most important in determining longitudinal static stability?

- A) Fuselage.
- B) Wings.
- C) Engines.
- D) Horizontal tailplane.

136- The CG of an aircraft with a nose wheel is:

- A) Forward of the main wheels.
- B) Behind the main wheels.
- C) Coincident with the nose undercarriage.
- D) In front of the nose wheel.

137- Rolling is the rotation of the aeroplane about the:

- A) Longitudinal axis.
- B) Vertical axis.
- C) Lateral axis.
- D) Wing axis.

138- The axes of an aircraft by definition must all pass through the:

- A) Flight desk.
- B) Aircraft datum.
- C) Centre of pressure.
- D) Centre of gravity.

139- The pitch angle is defined as the angle between the:

- A) Chord line and the horizontal plane.
- B) Longitudinal axis and the chord line.
- C) Longitudinal axis and the horizontal plane.
- D) Speed vector axis and the longitudinal axis.

140- The normal axis of an aircraft is:

- A) The axis passing from nose to tail of the aircraft.
- B) An axis through the CP, perpendicular to the longitudinal axis.
- C) An axis through the CG, perpendicular to the longitudinal axis.
- D) The axis which is a straight line passing through the CG which is parallel to a line passing through the wing tips.

141- Lateral control is given by:

- A) The ailerons around the lateral axis.
- B) The elevators around the lateral axis.
- C) The rudder around the normal axis.
- D) The ailerons around the longitudinal axis.

142- Directional control is:

- A) By ailerons around the longitudinal axis.
- B) By rudder around the normal axis.
- C) By elevator around the lateral axis.
- D) By rudder around the longitudinal axis.

143- The elevators control the aircraft around:

- A) The lateral axis.
- B) The longitudinal axis.
- C) The normal axis.
- D) The horizontal stabilizer.

144- Rolling is a movement about the axis.

- A) Lateral; lateral
- B) Lateral; longitudinal
- C) Longitudinal; lateral
- D) Longitudinal; longitudinal

145- A pitching motion is:

- A) About the lateral axis, related to longitudinal stability.
- B) About the lateral axis, related to lateral stability.
- C) About the longitudinal axis, related to lateral stability.
- D) About the longitudinal axis, related to longitudinal stability.

146- The lateral axis is also called the:

- A) Pitch axis.
- B) Normal axis.
- C) Roll axis.
- D) Horizontal axis.

147- Rudder controls:

- A) Yaw motion.
- B) Pitch motion.
- C) Roll motion.
- D) Turn motion.

148- The pilot uses the rudder to provide control around the:

- A) Lateral axis.
- B) Normal axis.
- C) Longitudinal axis.
- D) Turn axis.

149- If you should takeoff behind a heavy jet that has just landed you must plan to lift off:

- A) Beyond the point where the jet touched down.
- B) Prior the point where the jet touched down.
- C) It does not matter as far as you are upward.
- D) None of above.

150- Wake turbulence has greatest effect from a large heavy aircraft which is operating at:

- A) Low airspeed and low angle of attack.
- B) Low airspeed and high angle of attack.
- C) High airspeed and low angle of attack.
- D) High airspeed and high angle of attack.

151- When considering the forces acting upon an airplane in straight & level flight at constant airspeed, which statement is correct?

- A) Weight always acts vertically toward the center of the earth.
- B) Lift always acts perpendicular to the longitudinal axis of the wing.
- C) Thrust always acts forward parallel to the relative wind and is greater than drag.
- D) Drag always acts rearward parallel to the relative wind and is less than thrust.

152- An airplane in a steep-banked turn stalls at a higher airspeed than the wings level, because during turn the:

- A) Critical angle of attack has decreased.
- B) Critical angle of attack is reached at a higher airspeed.
- C) Total lift has decreased.
- D) Effective thrust has decreased.

153- An accumulation of frost on the airplane wings will result in:

- A) An increase in lift and drag.
- B) A decrease in lift and increase in drag.
- C) An increase in lift and a decrease drag.
- D) A decrease in lift and drag.

154- With constant angle of attack, what is the ratio between airspeed and lift if the airspeed is doubled?

- A) Two times greater.
- B) Three times greater.
- C) Four times greater.
- D) Will be the same.

155- Lift on a wing is most properly defined as the:

- A) Differential pressure acting perpendicular to the chord of the wing.
- B) Force produced perpendicular to the relative wind.
- C) Reduced pressure resulting from a smooth flow of air over a curved surface and acting perpendicular to the mean surface.
- D) Partial vacuum produced on top of the wing.

156- Which of the following are considered primary flight control?

- A) Outboard ailerons
- B) Tabs
- C) Empennage
- D) Flaps

157- While maintaining a constant angle of bank and altitude in a coordinated turn, an increase in airspeed will:

- A) Decreases the rate of turn resulting in a decreased load factor.
- B) Decrease the rate of turn resulting in no change in load factor.
- C) Increase the rate of turn resulting in an increased load factor.
- D) Increases the rate of turn resulting in a decreased load factor.

158- If an airplane weight is 3,500 lbs and subjects to a total load of 10,500 lbs in flight, what would be the load factor?

- A) +3 G's.
- B) +2 G's.
- C) +1 G's.
- D) +4 G's.

159- Lift is the force acting perpendicular to the:

- A) Chord line
- B) Relative wind
- C) Upper surface of the wing
- D) Lower surface of the wing

160- Drag is created:

- A) As the airplane starts to move.
- B) When the airplane flies.
- C) When the engine runs.
- D) When the airplane moves fast.

161- Lift equals weight and thrust equals drag during:

- A) Straight and level flight.
- B) Un-accelerated flight.
- C) Straight and level, un-accelerated flight.
- D) Normal flight.

162- While moving through the air an airfoil generates lift because of:

- A) More air pressure below the airfoil.
- B) Less air pressure above the airfoil.
- C) Airflow velocity increases on lower surface of wing.
- D) A & B are correct.

163- Leading edge of an airfoil is:

- A) In the middle part of the chord.
- B) Somewhere close to the CG of the airplane.
- C) The point which meets the air first.
- D) All answers are correct.

164- Chord line is:

- A) A line, which exists in some wings.
- B) A line drawn from one wing tip to other.
- C) An imaginary straight line drawn between the leading edge and the trailing edge.
- D) Any line joining the leading edge and the trailing edge.

165- The air striking the lower surface of a wing produces:

- A) The major portion of the total lift of the wing.
- B) The minor percentage of the total lift of the wing.
- C) All the lift force provided by wings.
- D) No lift force.

166- Angle of attack is the:

- A) Same as angle of incidence.
- B) Angle between the relative wind and the wing.
- C) Angle between relative wind and the chord line.
- D) Angle between horizon and the wing.

167- Which of the following is true regarding the relative wind:

- A) It is the wind caused by movement of air masses.
- B) It is created by propeller.
- C) It is the airflow created as a result of the motion of airfoil through the air.
- D) It is the air, which flows horizontally and in backward direction.

168- The main design considerations of a wing are:

- A) Plan form, span, camber and aspect ratio.
- B) Aspect ratio, angle of attack, camber and chord line.
- C) Aspect ratio, wing area, plan form and camber.
- D) Plan form, aspect ratio, wing area and angle of attack.

169- Aspect ratio is:

- A) Wing span divided by the average chord.
- B) The relationship between the length and the width of a wing.
- C) A factor to determine lift/drag characteristics.
- D) All answers are correct.

170- The higher aspect ratio, the:

- A) Lesser lift.
- B) More drag.
- C) Lesser drag.
- D) Smaller the angle of attack.

171- Angle of incidence is:

- A) The same as angle of attack.
- B) The angle formed between the chord line of the wing and the longitudinal axis of the airplane.
- C) The angle formed between the wing chord line and the lateral axis of the airplane.
- D) The angle formed between the plane of wing and the horizon.

172- As the angle of attack increases, lift and drag:

- A) Decreases.
- B) Increases.
- C) Remain the same.
- D) None of above.

173- When you change the angle of attack, at the same time you are changing the:

- A) Lift.
- B) Drag.
- C) Coefficient of lift.
- D) All answers are correct.

174- Which of the following is true regarding the boundary layer:

- A) It is airflow near the airplane control surfaces.
- B) It is the airflow under the wing.
- C) It is the same as relative wind.
- D) It is a flow of air adjacent to the wing surface contributing in the production of lift.

175- The only way for recovering from the stall is:

- A) Lowering the angle of attack.
- B) Increasing the lift.
- C) Decreasing the drag.
- D) Increase thrust and pitch attitude.

176- For a certain amount of lift to be created:

- A) There are only one certain airspeed and one certain angle of attack.
- B) There are different combination of airspeed and angle of attack.
- C) There is one certain airspeed.
- D) There is one certain angle of attack.

177- Which of the following is correct?

- A) A wing always stalls at the same angle of attack.
- B) A wing may stalls in different attitudes.
- C) A wing can stalls at different airspeeds.
- D) All answers are correct.

178- You will stall your airplane if you:

- A) Pulls the stick back.
- B) Decrease the airspeed.
- C) Pull the stick back to exceed the critical angle of attack.
- D) All answers are correct.

179- Stall may occur:

- A) Only in level flight attitude.
- B) Only in climb attitude.
- C) Only in descent attitude.
- D) In any attitude.

180- The airspeed resulting in the least amount of drag will:

- A) The maximum L/D ratio.
- B) The best glide angle.
- C) The longest gliding distance in propeller-driven aircraft.
- D) All answers are correct.

181- Drag is broadly divided into two types:

- A) Form drag and skin friction.
- B) Parasite drag and form drag.
- C) Induced drag and parasite drag.
- D) Profile drag and interference drag.

182- Total drag means:

- A) Interference drag, form drag and skin friction.
- B) Induced drag, form drag, parasite drag and skin friction.
- C) Induced drag, form drag, interference drag and skin friction.
- D) Parasite drag, form drag and skin friction.

183- Which of the following is correct?

- A) Form drag is the same as parasite drag.
- B) Skin friction is the same as parasite drag.
- C) Induced drag is the part of parasite drag.
- D) None of above.

184- Total drag is minimum when:

- A) Lift is maximum.
- B) Speed is maximum.
- C) Coefficient of lift is maximum.
- D) L/D is maximum.

185- As the airspeed increases above minimum drag speed:

- A) Induced drag increases but parasite drag decreases.
- B) Parasite drag increases but induced drag decreases.
- C) All types of drag decrease.
- D) All types of drag increase.

186- During acceleration:

- A) Drag exceeds thrust.
- B) Thrust equals drag.
- C) Thrust exceeds drag.
- D) Lift exceeds weight.

187- The more camber:

- A) The more lift.
- B) The more drag.
- C) More lift & less drag.
- D) A & B are correct.

188- In a coordinated turn the displacement of the turn needle:

- A) Increases as angle of bank increases and airspeed decreases.
- B) Indicate the angle of bank.
- C) Remain constant for a 30 degrees bank regardless of airspeed.
- D) Increase as angle of bank increases and airspeed increase.

189- If two aircraft are turning at the same angle of bank the slower aircraft:

- A) Has a greater turning radius and greater rate of turn.
- B) Has a smaller turning radius and smaller rate of turn.
- C) Has a smaller turning radius and greater rate of turn.
- D) Has a greater turning radius and smaller rate of turn.

190- In a coordinated-level turn at constant angle of bank, what would happen if you increase airspeed?

- A) The angle of attack will be increase with increasing load factor.
- B) The rate of turn will decrease with no change in load factor.
- C) The rate of turn will increase with decrease in load factor.
- D) The angle of bank will be decrease with decrease in load factor.

191- The reason of a light general aviation airplane tends to nose down during power reductions is the:

- A) Force of drag acts horizontally and above thrust line.
- B) Center of pressure is located forward of center of gravity.
- C) Center of gravity is located forward of center of pressure.
- D) Wing downwash on horizontal stabilizer increases.

192- The point on an airfoil through which lift acts is the:

- A) Midpoint of the chord.
- B) Center of pressure.
- C) Center of rotation.
- D) Center of gravity.

193- Lowering the flap during a landing:

- A) Permit to landing with a higher indicated speed.
- B) Eliminate floating.
- C) Decrease the angle of descent without increasing power.
- D) Increase the angle of descent without increasing airspeed.

194- The interference drag is reduced by:

- A) By streamlining.
- B) By polishing and painting the aircraft surfaces.
- C) By fitting fairing at the junctions.
- D) All answers are correct.

195- The primary purpose of using flaps is to:

- A) Takes the airplane off the ground.
- B) Land the airplane.
- C) Decrease the airspeed.
- D) Create more lift at slower airspeed.

196- The most efficient type of flap is the:

- A) Fowler flap.
- B) Slotted flap.
- C) Split flap.
- D) Plain flap.

197- Which of the following is true:

- A) Fowler flap is less efficient than slotted flap.
- B) Split flap is more efficient than fowler flap.
- C) Split flap is more efficient than slotted flap.
- D) Plain flap is less efficient than fowler flap.

198- Using flaps:

- A) Shortens the landing roll.
- B) Steepen the approach angle.
- C) Permit a lower airspeed in landing phase.
- D) All answers are correct.

199- What is dynamic longitudinal stability?

- A) Motion around longitudinal axis.
- B) Motion around lateral axis.
- C) Motion around vertical axis.
- D) All answers are correct.

200- The angle of attack at which an airplane wing stalls will:

- A) Change with an increase in gross weight.
- B) Remain the same regardless of gross weight.
- C) Decrease if the center of gravity is moved aft.
- D) Increase if the center of gravity is moved forward.

201- The acute angle between the chord of an airfoil (wing) and its direction of motion relative to the air is known as the:

- A) Dihedral angle.
- B) Stalling angle.
- C) Angle of attack.
- D) Angle of incidence.

202- Which statement is true regarding airplane weight and maximum distance glide speed?

- A) An increase in airplane weight would require a decrease in the best glide speed.
- B) A change in airplane weight will not require a change in the best glide speed.
- C) A decrease in airplane weight would require an increase in the best glide speed.
- D) A decrease in airplane weight would require a decrease in the best glide speed.

203- Aspect ratio of the wing is defined as the ratio of the:

- A) Wingspan to the wing root.
- B) Square of the chord to relative wind.
- C) Wingspan to the mean aerodynamic chord.
- D) Wing spar to the main compression rib.

204- All stalls in airplane are caused by:

- A) A loss of airspeed.
- B) Exceeding the critical angle of pitch.
- C) Exceeding the critical angle of attack.
- D) Misuse of the elevators.

205- An asymmetrical airfoil with zero angle of attack, creates a pressure below the wing that generally would be:

- A) Less than atmospheric pressure.
- B) Equal to atmospheric pressure.
- C) Greater than atmospheric pressure.
- D) Less than the pressure along the upper surface of the wing.

206- What is the relationship between true airspeed and angle of attack for generating the same amount of lift as altitude is increased:

- A) The same true airspeed and angle of attack.
- B) A higher true airspeed for any given angle of attack.
- C) The lower true airspeed and higher angle of attack.
- D) The lower true airspeed and lower angle of attack.

207- What should the pilot do to increase rate of turn and at the same time decrease the radius of turn?

- A) Shallow the bank and decrease airspeed.
- B) Shallow the bank and increase airspeed.
- C) Steepen the bank and increase airspeed.
- D) Steepen the bank and decrease airspeed.

208- Which changes in airplane control must be made to maintain altitude while the airspeed decreases?

- A) Increase the angle of attack to compensate for decreasing lift.
- B) Maintain a constant angle of attack until the desired airspeed is reached, then Increase the angle of attack.
- C) Increase the angle of attack to produce more lift than weight.
- D) Decrease the angle of attack to compensate for decreasing drag.

209- What procedure should be followed for vortex avoidance when landing behind a large airplane?

- A) Stay to one side of its final approach flight path and land near the edge of the runway.
- B) Stay above its final approach flight path all the way to touch down.
- C) Stay well below its final approach flight path and land at least 2000 ft behind.
- D) Stay below and to one side of its final approach flight path.

210- Adverse yaw during a turn entry is caused by:

- A) Increased induced drag on the lowered wing and decreased induced drag on the raised wing.
- B) Decreased induced drag on the lowered wing and increased induced drag on the raised wing.
- C) Increased parasite drag on the raised wing and decreased parasite drag on the lowered wing.
- D) Decreased parasite drag on the raised wing and increased parasite drag on the lowered wing.

211- The force, which imparts a change in the velocity of a mass, is called:

- A) Work.
- B) Power.
- C) Thrust.
- D) Lift.

212- An airplane would have a tendency to nose up and have inherent tendency to enter a stalled condition when the center of pressure is:

- A) Below the center of gravity.
- B) Aft of the center of gravity.
- C) Forward of the center of gravity.
- D) At same location of center of gravity.

213- Which statement relates to Bernoulli's principle?

- A) For every action there is an equal and opposite reaction.
- B) An additional upward force is generated as the lower surface of the wing deflects air downward.
- C) Air traveling faster over the curved upper surface of an airfoil causes lower pressure on the top surface.
- D) Air traveling slower over the curved upper surface of an airfoil causes higher pressure on the top surface.

214- That portion of the aircraft's total drag, created by the production of lift is called :

- A) Induced drag, and is not altered by the changes in airspeed.
- B) Induced drag, and are greatly altered by the changes in airspeed.
- C) Parasite drag, and is greatly altered by the changes in airspeed.
- D) Parasite drag, and is not altered by the changes in airspeed.

215- The resistance or skin friction due to the viscosity of the air as it passes along the surface of the wing is part of:

- A) Form drag.
- B) Induced drag.
- C) Parasite drag.
- D) Interference drag.

216- Which relationship is correct when comparing drag and airspeed?

- A) Induced drag increases as the square of the airspeed.
- B) Induced drag varies inversely as the square of the airspeed.
- C) Profile drag varies inversely as the square of the airspeed.
- D) Profile drag increases as the square root of the airspeed.

217- As the angle of bank is increased, the vertical component of lift:

- A) Increases and also the sink rate increases.
- B) Decreases and the sink rate increases.
- C) Increases and the sink rate decreases.
- D) Decreases and also the sink rate decreases.

218- What action is necessary to make an airplane turn?

- A) Yaw the airplane.
- B) Change the direction of lift.
- C) Change the direction of thrust.
- D) None of above.

219- The critical angle of attack at which a given airplane's wing stalls is depend on the :

- A) Gross weight.
- B) Design of the wing.
- C) Attitude and airspeed.
- D) Air density.

220- Which of the following is a result of ground effect?

- A) An increase in lift with no increase in angle of attack.
- B) An increase in induced drag with no change in angle of attack.
- C) An increase in the wing's downwash with no increase in angle of attack.
- D) An increase in induced drag by decreasing the angle of attack.

221- It is possible to fly an airplane just clear of the ground at a slightly slower airspeed than that required to sustain level flight at higher altitudes. This is the result of:

- A) Interference of the ground surface with the airflow patterns about the airplane in flight.
- B) A cushioning effect of the air as it is trapped between the grounds and the descending airplane.
- C) Ground interference with the static pressure system, which produces false indications on the airspeed indicator.
- D) Decreasing parasite drag due to increase downwash behind the wing.

222- An airplane is usually affected by ground effect at what height above the surface?

- A) Three to four times the airplane's wingspan.
- B) Twice the airplane's wingspan above the surface.
- C) Less than the airplane's wingspan above the surface.
- D) Length of airplane's fuselage above the surface.

223- If an airplane's gross weight is 3,250 pounds, what is the load acting on this airplane during a level 60° banked turn?

- A) 3,250 pounds.
- B) 5,200 pounds.
- C) 6,500 pounds.
- D) 5,500 pounds.

224- An airplane has a normal stalling speed of 60 MPH but is forced into an accelerated stall at twice that speed. What maximum load factor will result from this maneuver?

- A) 4 G's.
- B) 2 G's.
- C) 1 G's.
- D) 3 G's.

225- Which action will result in a stall?

- A) Flying at too low airspeed.
- B) Raising the airplane's nose too high.
- C) Exceeding the critical angle of attack.
- D) Flying at L/D MAX airspeed.

226- The most desirable type of stability for an aircraft to possess is:

- A) Neutral static stability.
- B) Positive static stability.
- C) Negative Static stability.
- D) All answers are correct.

227- The characteristic of an airplane that permits it to maneuver easily and withstand the stresses imposed on it is:

- A) Stability.
- B) Maneuverability.
- C) Controllability.
- D) None of above.

228- The capability of an airplane to respond to the pilot's inputs, especially with regard to flight path and attitude, is:

- A) Stability.
- B) Controllability.
- C) Maneuverability.
- D) None of above.

229- If an increase in power tends to make the nose of the aircraft rise, this is the result of the:

- A) Thrust line being below the center of gravity.
- B) Center of lift being ahead of the center of gravity.
- C) Center of lift and center of gravity being collocated.
- D) Center of gravity being ahead of the center of lift.

230- On which wing plan form does the stall begin at the wingtip and progress inward and toward the wing root?

- A) Sweepback wing.
- B) Elliptical wing.
- C) Moderate taper wing.
- D) Straight wing.

231- A rectangular wing, as compared to other wing plan form, has a tendency to stall first at the:

- A) Wingtip providing adequate stall warning.
- B) Wing root providing adequate stall warning.
- C) Wingtip providing inadequate stall warning.
- D) All along of span at same rate and quantity.

232- The purpose of aircraft wing dihedral angle is to:

- A) Increase lateral stability.
- B) Increase longitudinal stability.
- C) Increase lift coefficient of the wing.
- D) Decrease longitudinal stability.

233- Aspect ratio of a wing is defined as the ratio of the:

- A) Wingspan to the wing root.
- B) Wingspan to the mean chord.
- C) Square of the chord to the wingspan.
- D) Square of the wingspan to the mean chord.

234- A wing with a very high aspect ratio (in comparison with a low aspect ratio wing) will have:

- A) Lower stalling speed.
- B) Increased drag at high angles of attack.
- C) Poor control qualities at low airspeeds.
- D) Lower glide range capability.

235- At a constant velocity in airflow, a high aspect ratio wing will have (in comparison with a low aspect ratio wing):

- A) Increased drag, especially at a low angle of attack.
- B) Decreased drag, especially at a high angle of attack.
- C) Increased drag, especially at a high angle of attack.
- D) Increased drag, at all angle of attack.

236- The four aerodynamic forces acting on an airplane are:

- A) Power, velocity, gravity, and drag.
- B) Power, velocity, weight, and friction.
- C) Thrust, lift, gravity, and weight.
- D) Thrust, lift, weight and drag.

237- When the four aerodynamic forces act on an airplane are in equilibrium?

- A) When the aircraft is at rest on the ground.
- B) When the aircraft is accelerating
- C) While the aircraft is decelerating.
- D) During steady un-accelerated flight.

238- What is the relationship between lift, drag, thrust, and weight when the airplane is in straight and level flight?

- A) Lift equals drag and thrust equals weight.
- B) Lift, drag, and weight equal thrust.
- C) Lift and weight equal thrust and drag.
- D) Lift equals weight and thrust equals drag.

239- Which force makes an airplane turn?

- A) Centrifugal force.
- B) Rudder and aileron.
- C) Horizontal component of lift.
- D) Load factor.

240- An aircraft glide angle is solely function of:

- A) Its lift-drag ratio.
- B) Its all up weight.
- C) The aircraft's state of trim.
- D) The position of center of gravity.

241- The left turning tendency of an airplane caused by P-factor is the result of the (Propeller rotates clockwise in pilot's vision):

- A) Clockwise rotation of the engine and the propeller turning the airplane counterclockwise.
- B) Propeller blade descending on the right, producing more thrust than the ascending blade on the left.
- C) Gyroscopic forces applied to the rotating propeller blades acting 90° in advance of the point the force was applied.
- D) Spiral characteristics of the slipstream air being forced rearward by the rotating propeller.

242- The purpose of the rudder on an airplane is to:

- A) Controls the yaw.
- B) Control the over banking tendency.
- C) Maintain a crab angle to control drift.
- D) Maintain the turn after the airplane is banked.

243- The purpose of wing flaps is to:

- A) Enables the pilot to make steeper approaches for landing without increasing airspeed.
- B) Relieve the pilot of maintaining continuous pressure on the controls.
- C) Decrease wing area to vary the lift.
- D) Inject low pressure air into the boundary layer.

244- The amount of excess load that can be imposed on the wing depends upon the:

- A) Position of the CG.
- B) Speed of the airplane.
- C) Abruptness at which the load is applied.
- D) All answers are correct.

245- During an approach to a stall, an increased load factor will cause the airplane to:

- A) Stall at a higher airspeed.
- B) Have a tendency to spin.
- C) More difficult to control.
- D) Have a tendency to yaw and roll as the stall is encountered.

246- Which basic flight maneuver increases the load factor on an airplane as compared to straight and level flight?

- A) Climbs.
- B) Turns.
- C) Stalls.
- D) Slips.

247- An airplane said to be inherently stable will:

- A) Not spin.
- B) Be difficult to stall.
- C) Require less effort to control.
- D) Not overbanking tendency during steep turns.

248- What determines the longitudinal stability of an airplane?

- A) The location of the CG with respect to the center of lift.
- B) The effectiveness of the horizontal stabilizer, rudder, and rudder trim tab.
- C) The relationship of thrust and lift to weight and drag.
- D) The dihedral, angle of sweepback, and the keel effect.

249- An airplane has been loaded in such a manner that the CG is located behind the aft CG limit. One undesirable flight characteristic a pilot might experience with this airplane would be:

- A) Longer take-off run.
- B) The inability to recover from a stalled condition.
- C) Stalling at higher than normal airspeed.
- D) The inability to flare during landings.

250- Loading an airplane to the most aft CG will cause the airplane to be:

- A) Less stable at slow speeds, but more stable at high speeds.
- B) Less stable at high speeds, but more stable at low speeds.
- C) More stable at all speeds.
- D) Less stable at all speeds.

251- Frost on the wings of an airplane may:

- A) Cause the airplane to become airborne with a lower angle of attack and at a lower indicated airspeed.
- B) Make it difficult or impossible to become airborne.
- C) Present no problems since frost will blow off when the airplane starts moving during takeoff.
- D) Change the camber (curvature of the wing) thereby increasing lift during takeoff.

252- P-factor causes the airplane (propeller rotates clockwise as seen from cockpit):

- A) The unstable around the lateral axis.
- B) Yaw to the left when at high angles of attack.
- C) Yaw to the left when at high speeds.
- D) Be unstable around the vertical and lateral axes.

253- Which condition results in greatest torque effect on single engine airplane?

- A) Low airspeed, high power setting.
- B) Low airspeed, low power setting.
- C) High airspeed, high power setting.
- D) High airspeed, low power setting.

254- As altitude increases, the indicated airspeed at which a given airplane stalls in a particular configuration will (piston-engine airplane):

- A) Decreases as the true airspeed decrease.
- B) Decrease as the true airspeed increases.
- C) Remain the same regardless of gross weight.
- D) Increase because the air density becomes less.

255- Ground effect is most likely to result in which problem?

- A) Settling to the surface abruptly during landing.
- B) Becoming airborne before reaching recommended takeoff speed.
- C) Inability to get airborne even though airspeed is sufficient for normal takeoff speeds.
- D) A rapid rate of sink and absence of normal cushioning during landings.

256- Which phenomenon must a pilot be aware of as a result of ground effect?

- A) The increase in wingtip vortices.
- B) It results in the least significant reduction of thrust available.
- C) Wing downwash on the tail surfaces increases.
- D) The induced angle of attack and induced drag decreases.

257- After takeoff and after leaving ground effect, the pilot will need to:

- A) Decrease the angle of attack to maintain the same lift coefficient.
- B) Increase thrust due to an increase in induced drag.
- C) Increase pitch attitude due to a nose down change in moment.
- D) Decrease thrust due to a decrease in induced drag.

258- Floating caused by the phenomenon of ground effect will be most realized during an approach to land when:

- A) At less than the length of the wingspan above the surface.
- B) At twice the length of the wingspan above the surface.
- C) Higher than normal angle of attack is used.
- D) At speeds approaching a stall.

259- Which of the following is considered as primary flight control?

- A) Elevator.
- B) Dorsal fin.
- C) Slats.
- D) Spoilers.

260- Which of the following is not considered as primary flight control?

- A) Rudder
- B) Elevator
- C) Trailing edge Flaps
- D) Ailerons

261- Wake turbulence is greatest from a large heavy aircraft, which is operating at:

- A) Low airspeed and low angle of attack.
- B) Low airspeed and high angle of attack.
- C) High airspeed and low angle of attack.
- D) High airspeed and high angle of attack.

262- What is a purpose of flight spoilers?

- A) Increase the camber of the wing.
- B) Reduce speed by increasing drag.
- C) Direct airflow over the top of the wing at high angles of attack.
- D) Increase lift and drag simultaneously.

263- For which purpose may flight spoilers be used?

- A) Increase the rate of descent without increasing aerodynamic drag.
- B) Aid in longitudinal balance when rolling an airplane into a turn.
- C) Reduce the wings lift upon landing.
- D) B & C are correct.

264- Stall speed is affected by:

- A) Weight, load factor and power.
- B) Load factor, angle of attack and power.
- C) Angle of attack, weight and air density.
- D) Load factor, ice/frost, CG position, flap setting and angle of attack.

265- An airplane leaving ground effect will:

- A) Displays more stability and a nose change in moment.
- B) Experiences an increase in induced drag require more thrust.
- C) Requires a Lower angle of attack to maintain the same lift coefficient.
- D) Experiences a decrease in induced drag require less thrust.

266- What is the characteristic of flight at maximum L/D in a propeller-driven airplane?

- A) Best angle of climb.
- B) Maximum range and maximum glide distance.
- C) Maximum coefficient of lift and minimum coefficient of drag.
- D) Maximum endurance.

267- If the airplane attitude remains in a new position after the elevator control is pressed forward and released the airplane displays:

- A) Neutral longitudinal static stability.
- B) Positive longitudinal static stability.
- C) Neutral longitudinal dynamic stability.
- D) Negative longitudinal static stability.

268- Load factor is the lift generated by the wing of an airplane at any given time:

- A) Multiplied by the total weight of the airplane.
- B) Divided by the total weight of the airplane.
- C) Subtracted from the total weight of the airplane.
- D) Added to the empty weight of the airplane.

269- The design load factor for airplane in the normal category is:

- A) +4.4 G's.
- B) +5.4 G's.
- C) +3.8 G's.
- D) +6 G's.

270- If the airspeed of an airplane is doubled while in level flight, parasite drag will:

- A) Remains the same.
- B) Decreases as airspeed increases.
- C) Doubles.
- D) Be four times greater.

271- As airspeed increases in level flight above the maximum L/D speed, total drag of an airplane:

- A) Decreases due to decreased induced drag.
- B) Increases due to increased induced drag.
- C) Decreases due to decreased parasite drag.
- D) Increases due to increased parasite drag.

272- As airspeed decreases in level flight below the speed for maximum L/D, total drag of an airplane:

- A) Increases because of increased induced drag.
- B) Increases because of increased parasite drag.
- C) Decreases because of lower induced drag.
- D) Decreases because of lower parasite drag.

273- Which statement is true relative to changing angle of attack?

- A) A decrease in angle of attack will increase impact pressure below the wing and decrease drag.
- B) An increase in angle of attack will decrease impact pressure below the wing and increase drag.
- C) An increase in angle of attack will increase impact pressure below the wing and increase drag.
- D) An increase in angle of attack will increase impact pressure the wing and decrease drag.

274- For a given angle of bank, the load factor imposed on both the aircraft and pilot in a coordinated-level turn:

- A) Varies with the rate of turn.
- B) Is constant.
- C) Is directly related to the airplane's gross weight.
- D) Varies with the airspeed.

275- How does V_{NE} speed vary with altitude?

- A) Varies directly with altitude.
- B) Varies inversely with altitude.
- C) Remains the same at all altitudes.
- D) None of above.

276- What is the pilot action to avoid the wingtip vortices of a departing jet airplane during takeoff?

- A) Climb above and stay upwind of the jet airplane's flight path.
- B) Lift off exactly at the jet airplane's flight path.
- C) Remain below the flight of the jet airplane.
- D) Lift off at a point well past the jet airplane's flight path.

277- Wingtip vortices are created only, when the airplane is:

- A) Generating lift.
- B) Heavily loaded.
- C) Operating at high airspeed.
- D) Using high power setting.

278- If you should takeoff behind a heavy jet that has just landed you must plan to lift off:

- A) Prior the point where the jet touched down.
- B) It does not matter as far as you are upward.
- C) Beyond the point where the jet touched down.
- D) At the point where the jet touched down.

279- Which of the following are considered primary flight controls?

- A) Tabs
- B) Rudder
- C) Flaps
- D) Slats

280- The primary purpose of high-lift devices is to increase the:

- A) Drag and reduce airspeed.
- B) Lift at lower speeds.
- C) L/D max.
- D) Lift and decrease the drag, so the L/D increases just below its maximum value.

281- During a constant-bank level turn, what effect would an increase in airspeed have on the rate and radius of turn?

- A) Rate of turn would increase and the radius of turn would increase.
- B) Rate of turn would decrease and the radius of turn would decrease.
- C) Rate of turn would decrease and the radius of turn would increase.
- D) Rate of turn would increase and the radius of turn would decrease.

282- When airspeed increases in a turn, what must be done to maintain level flight?

- A) Decrease the angle of bank and or increase the angle of attack.
- B) Increase the angle of bank and or decrease the angle of attack.
- C) Increase the angle of attack.
- D) Decrease the angle of bank.

283- Which force is counterbalanced by horizontal component of lift during turn?

- A) Rudder pressure or force around the vertical axis.
- B) Vertical component of lift.
- C) Centrifugal force.
- D) Centripetal force.

284- Which is the relationship between the centrifugal force and the horizontal component of lift in a skidding turn?

- A) Horizontal component of lift exceeds the centrifugal force.
- B) Horizontal component of lift and the centrifugal force are equal.
- C) Centrifugal force exceeds the horizontal component of lift.
- D) None of above.

285- During skidding turn to the right what is relationship between the component of lift, centrifugal force and load factor?

- A) Centrifugal force is less than horizontal lift and the load factor is increased.
- B) Centrifugal force is greater than horizontal lift and the load factor is increased.
- C) Centrifugal force and the horizontal lift are equal and the load factor is increased.
- D) Centrifugal force is greater than horizontal lift and the load factor is decreased.

286- When airspeed decreases in a turn, what must be done to maintain level flight?

- A) Decrease the angle of bank and or increase the angle of attack.
- B) Increase the angle of bank and or decrease the angle of attack.
- C) Increase the angle of attack and or increase angle of bank.
- D) Decrease the angle of bank and or decrease the angle of attack.

287- The primary reason the angle of attack must be increased to maintain a constant altitude during a coordinated turn, is because the:

- A) Thrust is acting in different direction, causing a reduction in airspeed and loss of lift.
- B) Vertical component of lift has decreased as the result of the bank.
- C) Use of aileron has increased the drag.
- D) To stop the overbanking tendency as the result of turning.

288- Which statement is true regarding impact pressure?

- A) At high angle of attack this may account for as much as 40% to 50% of the total lift.
- B) At low angle of attack this may account for as much as 25 to 30% of the total lift.
- C) At high angle of attack this may account for as much as 25 to 30% of the total lift.
- D) At low angle of attack this may account for as much as 40% to 50% of the total lift.

289- Which statement is true regarding C_L ?

- A) C_L is determined by angle of attack.
- B) C_L is determined by airfoil design.
- C) C_L is the ratio between the lift and dynamic pressure on a given airfoil.
- D) All answers are correct.

290- A pilot is entering an area where significant clear air turbulence has been reported. Which action is appropriate upon encountering the first ripple?

- A) Maintain altitude and airspeed.
- B) Adjust airspeed to that recommended for rough air.
- C) Enter a shallow climb or descent at maneuvering speed.
- D) Maintain the level flight and increase speed by 10 to 20 knots above V_A .

291- The angle of attack, which produces the highest L/D ratio:

- A) Remains constant as weight is changed, but decreases as altitude is increased.
- B) Increases as weight or altitude is increased.
- C) Remains constant as altitude is changed, but decreases as weight is reduced.
- D) Remains constant regardless of weight or altitude.

292- Which factors are used to define the angle of attack of an airfoil?

- A) Chord line of the airfoil and the horizon.
- B) Bottom surface of the wing and the flight path.
- C) Mean chord of the airfoil and the relative wind.
- D) Relative wind and chord line.

293- During a coordinated turn, in level flight at a constant airspeed, centrifugal force is counterbalanced by:

- A) The weight of the airplane.
- B) The coordinated use of rudder control.
- C) The increased speed of the high wing and decreased speed of the low wing.
- D) A portion of lift of the wing.

294- The true airspeed at which an airplane stalls varies with:

- A) Load factor, weight, and density altitude.
- B) Load factor and angle of attack.
- C) Density altitude, weight, and angle of attack.
- D) Groundspeed, load factor, and density altitude.

295- Compared to a no-wind condition, what affect would a 20-knot headwind component have on take-off performance?

- A) Actual groundspeed at rotation will be greater than V_R .
- B) The airplane will reach critical engine failure indicated airspeed at a lower groundspeed.
- C) Critical engine failure speed and actual groundspeed will be the same as in a zero-wind condition.
- D) The effect of wind on initial acceleration will result in a longer takeoff roll.

296- Which statement is true regarding the forces acting on an aircraft in a steady state climb? The sum of all

- A) Forward forces are less than the sum of all rearward forces.
- B) Forward forces are greater than the sum of all rearward forces.
- C) Upward forces are greater than the sum of all downward forces.
- D) Upward forces are equal to the sum of all downward forces.

297- Rotation about the lateral axis of an airplane is known as:

- A) Yawing, and is controlled by the use of rudder.
- B) Rolling, and is controlled by the use of ailerons.
- C) Turning, and is controlled by the use of ailerons.
- D) Pitching, and is controlled by the use of elevators.

298- What effect will a decreasing air density have on lift and drag?

- A) Lift will increase and drag will decrease.
- B) Lift and drag will increase.
- C) Lift and drag will decrease.
- D) Lift will decrease and drag will increase.

299- Vortices from large aircraft in flight sink at a rate of about:

- A) 200 to 300 feet per minute.
- B) 300 to 400 feet per minute.
- C) 400 to 500 feet per minute.
- D) 900 to 1000 feet per minute.

300- By changing the Angle of Attack of wing, the pilot can control the aeroplane's:

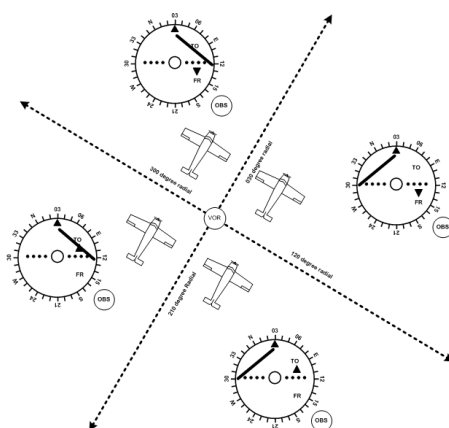
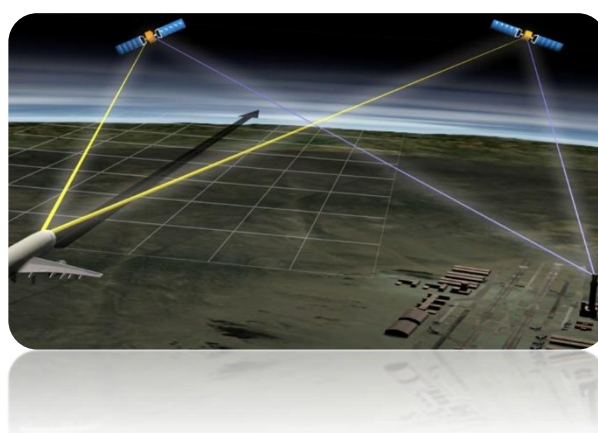
- A) Lift, airspeed and drag.
- B) Lift and airspeed, but not drag.
- C) Lift, gross weight and drag.
- D) Lift and drag, but not airspeed.

Question	Answer	Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	A	41	A	81	B	121	C	161	C
2	D	42	A	82	C	122	A	162	D
3	B	43	D	83	C	123	C	163	C
4	B	44	B	84	B	124	A	164	C
5	C	45	C	85	A	125	A	165	B
6	D	46	A	86	C	126	A	166	C
7	A	47	A	87	B	127	C	167	C
8	B	48	A	88	C	128	D	168	C
9	C	49	D	89	D	129	B	169	D
10	A	50	B	90	C	130	B	170	C
11	A	51	C	91	B	131	C	171	B
12	B	52	C	92	C	132	D	172	B
13	A	53	C	93	B	133	C	173	D
14	B	54	A	94	C	134	C	174	D
15	A	55	C	95	A	135	D	175	A
16	C	56	A	96	B	136	A	176	B
17	D	57	A	97	C	137	A	177	D
18	D	58	B	98	D	138	D	178	C
19	D	59	C	99	C	139	C	179	D
20	B	60	C	100	B	140	C	180	D
21	B	61	B	101	C	141	D	181	C
22	A	62	B	102	A	142	B	182	C
23	A	63	A	103	A	143	A	183	D
24	B	64	B	104	D	144	B	184	D
25	B	65	C	105	B	145	A	185	B
26	C	66	A	106	D	146	A	186	C
27	C	67	A	107	C	147	A	187	D
28	A	68	B	108	B	148	B	188	A
29	C	69	A	109	B	149	A	189	C
30	B	70	C	110	B	150	B	190	B
31	C	71	A	111	A	151	A	191	C
32	C	72	C	112	B	152	B	192	B
33	D	73	C	113	B	153	B	193	D
34	D	74	C	114	B	154	C	194	C
35	A	75	B	115	A	155	B	195	D
36	C	76	C	116	D	156	A	196	A
37	B	77	B	117	C	157	B	197	D
38	B	78	B	118	B	158	A	198	D
39	C	79	D	119	A	159	B	199	B
40	D	80	D	120	C	160	A	200	B

Question	Answer	Question	Answer	Question	Answer	Question	Answer	Question	Answer
201	C	221	A	241	B	261	B	281	C
202	D	222	C	242	A	262	B	282	B
203	C	223	C	243	A	263	D	283	C
204	C	224	A	244	B	264	A	284	C
205	C	225	C	245	A	265	B	285	B
206	B	226	B	246	B	266	B	286	A
207	D	227	B	247	C	267	A	287	B
208	A	228	B	248	A	268	B	288	C
209	B	229	A	249	B	269	C	289	D
210	B	230	A	250	D	270	D	290	B
211	C	231	B	251	B	271	D	291	D
212	C	232	A	252	B	272	A	292	D
213	C	233	B	253	A	273	C	293	D
214	B	234	A	254	C	274	B	294	A
215	C	235	B	255	B	275	C	295	B
216	B	236	D	256	D	276	A	296	D
217	B	237	D	257	B	277	A	297	D
218	B	238	D	258	A	278	C	298	C
219	B	239	C	259	A	279	B	299	C
220	A	240	A	260	C	280	B	300	A

430

Radio Navigation



1- Dual VORs (units independent of each other except the antenna) are installed in an aircraft. What is the maximum permissible variation between the two bearing indications when one VOR receiver is checked against the other?

- A) Four degrees in flight and six degrees on the ground
- B) Four degrees on the ground and in flight
- C) Six degrees in flight and on the ground
- D) Six degrees in flight and four degrees on the ground

2- When CDI is centered with from indication you can read the radial that you are on shown by:

- A) Top index
- B) Reciprocal of the course set by OBS
- C) 90° to the left of top index
- D) 90° to the right of top index

3- When dual independent VOR receivers are installed in an airplane (except the antenna) what is the maximum acceptable variation between the bearing indicators when checking the receivers using a VOT?

VOR#1 TO/FROM

VOR#2 TO/FROM

- | | |
|-------------|----------|
| A) 360 TO | 002 TO |
| B) 180 TO | 183 TO |
| C) 001 FROM | 005 FROM |
| D) 180 FROM | 182 FROM |

4- What is the operational status of a VOR/VORTAC if you receive only the coded identifier every 30 seconds?

- A) The VOR is inoperative the DME is operating normally.
- B) The DME is inoperative the VOR is operating normally.
- C) Maintenance is being performed and that neither the VOR nor DME is operating normally.
- D) Both the VOR and DME signals are operating normally.

5- Unless otherwise determined through flight inspection procedures what is the normal expected service of an (L) class navigation air as it appears on an En-route Low Altitude Chart?

- A) 40NM
- B) 30NM
- C) 20NM
- D) 10NM

6- Unless otherwise determined through flight inspection procedures what is the maximum expected service range of an (H) class navigation air as it appears on an En-route High Altitude Chart?

- A) 130 NM
- B) 120 NM
- C) 110 NM
- D) 100 NM

7- When the off flag displays on VOR indicator:

- A) When you are flying directly over station
- B) When you are flying 90° to each side of selected course
- C) When the signals are unreliable
- D) All answers are correct.

8- Which indication should you receive when you are directly over a VORTAC by using only the DME for this situation?

Flight altitude 6,500 ft MSL

NAVAID site elevation 500 ft MSL

- A) The DME would indicate approximately 1 NM.
- B) The DME would indicate "0" miles.
- C) The DME would indicate approximately 5 NM.
- D) The DME would "break lock" as you passed directly overhead.

9- If an airborne check point is used to check the VOR system for IFR operations, the maximum permissible bearing error will be:

- A) Plus 4, minus 6
- B) Plus or minus 6
- C) Plus 6, minus 4
- D) Plus or minus 4

10- When you are flying with right crosswind you should..... your heading for remaining on course.

- A) decrease - to the wind
- B) increase - to the wind
- C) decrease - perpendicular to wind
- D) increase - perpendicular to wind

11- VOR operates in..... and on Frequency between.....

- A) UHF - 108.00 through 117.95 MHz
- B) UHF - 108.00 through 117.95 kHz
- C) VHF - 108.00 through 117.95 MHz
- D) VHF - 108.00 through 117.95 kHz

12- Relative bearing: 270°, magnetic heading: 360°, on which magnetic bearing the aircraft is flying?

- A) Magnetic bearing 270° from the station
- B) Magnetic bearing 275° to the station
- C) Magnetic bearing 90° from the station
- D) Magnetic bearing 90° to the station

13- When checking one VOR system against the other prior to an IFR flight, what is the maximum permissible variation between the two indicated bearings?

- A) 2
- B) 4
- C) 6
- D) 8

14- CDI in VOR indicator shows whether the aircraft is:

- A) Left of course
- B) right of course
- C) on the selected course
- D) All answers are correct

15- Which of the following statement does not belong to VOR classifications?

- A) LVOR
- B) TVOR
- C) VORTAC
- D) HVOR

16- Which distance is commonly displayed by the DME indicator?

- A) Slant range distance in nautical miles.
- B) Slant range distance in statute miles.
- C) The distance from the aircraft to a point at the same altitude directly above the VORTAC.
- D) Line of sight direct distance from aircraft to VORTAC in statute miles.

17- Where does the DME indicator have the greatest error between ground distance to the VORTAC and displayed distance?

- A) High altitudes far from the VORTAC
- B) High altitudes close to the VORTAC
- C) Low altitudes far from the VORTAC
- D) Low altitudes close to the VORTAC

18- What is the TVOR standard service volume (SSV), 1,000 ft above the station site?

- A) 18,000 ft AGL , 40 NM
- B) 12,000 ft AGL , 25 NM
- C) 14,500 ft AGL , 100 NM
- D) 45,000 ft AGL , 130 NM

19- Choose the correct answer regarding HVOR standard service volume?

- A) From station site up to 45,000 ft AGL the reception range is 40 NM.
- B) From station site up to 60,000 ft AGL the reception range is 40 NM.
- C) Between 45,000 ft and 60,000 ft AGL the reception range is 130 NM.
- D) Between 18,000 ft and 45,000 ft AGL the reception range is 130 NM.

20- Below 18,000 ft AGL, what is the maximum reception distance of HVOR?

- A) 25 NM
- B) 40 NM
- C) 130 NM
- D) 100 NM

21- When DME tuned to a VORDME station the absence of the Morse code every 30 seconds means that:

- A) Only DME is inoperative
- B) VOR is operative
- C) Only VOR is inoperative
- D) DME is operative

22- The needle in fix-card ADF shows:

- A) bearing
- B) magnetic heading
- C) heading
- D) relative bearing

23- The DME error is:

- A) One half of NM.
- B) 3% of distance.
- C) One NM when flying 6076 feet above station.
- D) 1/2 NM or 3% whichever is greater.

24- Reception range of NDB is depending on:

- A) Power of NDB
- B) Atmospheric condition
- C) Latitude
- D) All answers are correct

25- Night effect is caused by ionosphere layer.

- A) True
- B) False

26- When the needle of ADF shows the lightening instead of NDB that you selected, it's called:

- A) Precipitation static
- B) Thunderstorm effect
- C) Night effect
- D) Shoreline effect

27- ADF indicator has off-flag to warn you unreliable signals:

- A) True
- B) False

28- One way to ensure receive usable signal from NDB is:

- A) Disregarding ADF
- B) Hearing Morse code
- C) Check 10° accuracy before using NDB
- D) None of above

29- The ADF is tuned to a radio beacon if the magnetic heading is 040° and the relative Bearing is 290°, the magnetic bearing TO that radio beacon would be:

- A) 150°.
- B) 285°.
- C) 330°.
- D) 105°.

30- Civil aircraft can use TACAN facility, just by using it's:

- A) Distance
- B) Direction
- C) A + B
- D) Heading

31- The radio beams that is transmitted by VORs are called:

- A) DME
- B) Radial
- C) Bearing
- D) Pulse

32- Radio beams which are transmitted by VOR from

- A) Counter clockwise - true north
- B) Clockwise - true north
- C) Counter clockwise - magnetic north
- D) Clockwise - magnetic north

33- Victor airway is a route that is established:

- A) By NDB bearings
- B) between two VORs
- C) between two NDBs
- D) B & C are correct

34- DME Morse code will be heard:

- A) Every 15 seconds
- B) Every 20 seconds
- C) Every 30 seconds
- D) Every 3 to 4 seconds

35- Slant range error is greatest when you are:

- A) Close the station
- B) At higher altitude
- C) A & B are correct
- D) At lower altitude and far away from station

36- NDB signals are transmitted in the range between:

- A) 190 kHz-535 kHz
- B) 190 kHz-335 kHz
- C) 190 kHz-353 MHz
- D) 190 kHz-535 MHz

37- Relative bearing is the clockwise angle between and facility.

- A) Aircraft - VOR
- B) Heading-VOR
- C) Aircraft's nose — NDB
- D) Lateral axis of aircraft — NDB

38- When checking the course sensitivity of a VOR receiver how many degrees should the OBS be rotated to move the CDI from the center to the last dot on either side?

- A) 5-10
- B) 10-12
- C) 15-18
- D) 18-20

39- Given:

Wingtip bearing change	15°
Elapsed time between bearings	8 min
True airspeed	90 kts
Fuel flow	8.6 Gal/hr
Wind	Calm

The time, distance and fuel required to fly the station is:

- A) 48 min - 32 NM - 4.58 Gal
- B) 32 min - 48 NM - 4.58 Gal
- C) 27 min - 45 NM - 6.50 Gal
- D) 48 min - 48 NM - 4.58 Gal

40- What is the DME error when flying at 50 NM from the station?

- A) 0.5 NM
- B) 1.5 NM
- C) 1 NM
- D) 2.5 NM

41- When using VOT to make a VOR receiver check the CDI should be centered and the OBS should indicate that the aircraft is on the:

- A) Radial 090°
- B) Radial 180°
- C) Radial 270°
- D) Radial 360°

42- In most VOR receivers the course deviation indicator is so calibrated that a full-scale deflection is registered when the aircraft's position is on a bearing that is:

- A) 1° from the selected course when near the station and 10° from the selected course at a more distant location.
- B) 10 NM or more to the left or right of the selected course.
- C) 5° or more from the selected bearing.
- D) 10° or more from the selected bearing.

43- Pointing an aircraft directly to the NDB station regardless of wind is called:

- A) NDB orientation
- B) Homing
- C) Tracking
- D) Bracketing

44- For minimizing shoreline effect, you should avoid flying to the station with angle:

- A) Less than 40°
- B) More than 30°
- C) Less than 30°
- D) At right angle

45- To track outbound on the 180 radial of a VOR station the recommended procedure is to set the OBS to:

- A) 360° and make heading corrections away from the CDI needle.
- B) 360° and make heading corrections toward the CDI needle.
- C) 180° and make heading corrections away from the CDI needle.
- D) 180° and make heading corrections toward the CDI needle.

46- To track inbound on the 215 radial of a VOR station the recommended procedure is to set the OBS on:

- A) 215° and make heading corrections toward the CDI needle.
- B) 215° and make heading corrections away from the CDI needle.
- C) 035° and make heading corrections toward the CDI needle.
- D) 035° and make heading corrections away from the CDI needle.

47- The magnetic bearing on an ADF changes from 270° to 260° in 2 minutes elapsed time. If the ground speed is 155 knots the distance to that station would be:

- A) 20 NM
- B) 25.8 NM
- C) 31 NM
- D) 62 NM

48- At 120 knots ground speed the magnetic bearing on an ADF changes from 090° to 095° in 1 minute elapsed time. The distance to the station would be:

- A) 12 NM
- B) 16 NM
- C) 18 NM
- D) 24 NM

49- The ADF is tuned to a non-directional radio beacon and the magnetic bearing changes from 090° to 100° in 1.5 minutes elapsed time. Time to station would be:

- A) 6 minutes
- B) 9 minutes
- C) 12 minutes
- D) 15 minutes

50- The ADF is tuned to a non-directional radio beacon and the magnetic bearing changes from 270° to 265° in 1.5 minutes elapsed time. Time to the station would be:

- A) 12 minutes
- B) 18 minutes
- C) 21 minutes
- D) 24 minutes

51- The ADF is tuned to a non-directional radio beacon and the magnetic bearing changes from 090° to 100° in 2.5 minutes elapsed time. If the ground speed is 90 knots, the distance and time to station would be:

- A) 2.25 NM and 1.5 minutes
- B) 15 NM and 22.5 minutes
- C) 22.5 NM and 15 minutes
- D) 32 NM and 18 minutes

52- Given:

Wingtip bearing change

10°

Elapsed time between bearings

4 min

Fuel flow

12 Gal/hr

Calculate the fuel required to fly to the station:

- A) 4.8 Gal
- B) 8.4 Gal
- C) 12 Gal
- D) 24 Gal

53- For identifying a VOR station you should:

- A) Tune the frequency correctly
- B) Hearing the VOR Morse code
- C) Try to keep the CDI centered
- D) A & B are correct

54- When there is no Morse code of VOR station, it means that the:

- A) Station is not operational.
- B) Station is part-time operational.
- C) Station has no Morse code.
- D) Station is very close to us.

55- Each dot on the scale of CDI deviation represents:

- A) 1 degree off course
- B) 2 degrees off course
- C) 3 degrees off course
- D) 4 degrees off course

56- What is the total correction angle when an aircraft has flown 48 NM and experienced 4 NM left drift and distance to station is 120 NM?

- A) 3°
- B) 5°
- C) 7°
- D) 9°

57- An aircraft is maintaining a magnetic heading of 275° and ADF shows a relative bearing of 070°. This indicates that the aircraft is crossing the:

- A) 070° MB FROM
- B) 165° MB FROM
- C) 205° MB FROM
- D) 345° MB FROM

58- The magnetic heading is 305° and the ADF shows a relative bearing of 135°. The magnetic bearing from the radio beacon would be:

- A) 080°
- B) 135°
- C) 170°
- D) 260°

59- What is the maximum error of VOR over airborne checkpoint when we compare two VOR against each other?

- A) $\pm 6^\circ$
- B) $\pm 4^\circ$
- C) 4°
- D) 6°

60- What is the shape of VOR antenna?

- A) Shark's fin
- B) V shape
- C) Loop shape
- D) None of above

61- What is the shape of DME antenna?

- A) Shark's fin
- B) V shape
- C) Loop shape
- D) All answers are correct

62- What would be the MB From with MH of 349° and MB TO of 318°?

- A) 327°
- B) 329°
- C) 138°
- D) 318°

63- Which one is correct?

- A) $RB = MH + MB$
- B) $MH = RB + MB$
- C) $MB = MH - RB$
- D) $MB = MH + RB$

64- If the magnetic bearing changes from 090° to 100° in 2.5 minutes elapsed time, the time to the station would be:

- A) 12 minutes.
- B) 15 minutes.
- C) 18 minutes.
- D) 22 minutes.

65- The ADF indicates a wingtip bearing change of 10° in 1.5 minutes elapsed time and the G/S is 150 knots what is the distance to the station?

- A) 15.0 NM
- B) 22.5 NM
- C) 27.0 NM
- D) 35.5 NM

66- With the parameters of compass heading 040°, distance flown 20 NM, distance to destination 229 NM and distance off course is 5 NM to the left what is the compass heading to destination?

- A) 35°
- B) 24°
- C) 50°
- D) 56°

67- For minimizing the night effect you should:

- A) Use strong power station
- B) Select NDBs with frequency less than 350 MHz.
- C) Fly at higher altitude.
- D) Fly at lower altitude.

68- The DME actually measures:

- A) Horizontal distance.
- B) Slant distance.
- C) Horizontal distance and corrected for altitude.
- D) Slant distance and corrected for altitude.

69- VORs are divided into 3 classes according to their:

- A) Range
- B) Reception altitude
- C) Shape
- D) A & B are correct.

70- VOR airborne equipment consists of:

- A) Antenna
- B) Receiver
- C) Indicator
- D) All answers are correct

71- VOR indicator consists of:

- A) To/From indicator and course selector
- B) Course deviation indicator
- C) Dot
- D) All answers are correct.

72- You are flying on 120° Radial of a VOR station, in no wind condition what heading should fly to stay on 120° radial:

- A) No definite heading because heading has no effect on VOR.
- B) Heading of 120°
- C) Heading of 300°
- D) Both B and C are correct.

73- Shoreline effect can be little or minimized when flying:

- A) Over ground to water with an angle greater than 30°.
- B) Over water inside the land with an angle greater than 30°.
- C) Over water and selecting a land base with a bearing greater than 30°.
- D) Over water and selecting a land base with frequency lower than 350 kHz.

74- Which is true about homing when using ADF during crosswind conditions?

- A) To a radio station results in a curved path that leads to the station.
- B) Practical navigation method for flying both to and from a radio station.
- C) To a radio station requires that the ADF have an automatically or manually rotatable azimuth.
- D) Is most effective method in strong crosswind.

75- Determining your position with respect to VOR facility is known as:

- A) VOR orientation
- B) Cross check
- C) Intercepting
- D) Tracking

76- When flying to the station on a predetermined radial for staying on the radial during crosswind:

- A) The WCA must be added to the course selected.
- B) By maintaining CDI on center position.
- C) By adding WCA to the heading.
- D) By flying a heading equal to the selected course.

77- The relative bearing of an aircraft which flying directly to the station in no wind condition is:

- A) The same as magnetic heading.
- B) Aircraft heading $\pm 180^\circ$.
- C) Zero.
- D) Reciprocal of magnetic bearing.

78- For elimination of terrain effect the pilot should select:

- A) Only strong station.
- B) Station with frequency lower than 350 kHz.
- C) A bearing which is greater than 30° relative to station.
- D) A normal NDB station but should notify the ADF fluctuation.

79- The magnetic heading is 315° and the ADF shows a relative bearing of 140° , the magnetic bearing FROM the radio beacon would be:

- A) 095°
- B) 005°
- C) 275°
- D) 185°

80- The magnetic heading is 350° and the relative bearing to a radio beacon is 240° what would be the magnetic bearing TO that radio beacon?

- A) 050 °
- B) 230 °
- C) 295 °
- D) 320 °

81- When using VOT to make a VOR receiver check, the CDI should be centered with the OBS should indicate that the aircraft is on the:

- A) Radial 090°.
- B) Radial 180°.
- C) Radial 360°.
- D) Radial 270°.

82- The range of an NDB frequency is:

- A) 200-415 MHz-L/MF.
- B) 190-535 kHz-L/MF.
- C) 200-1750 kHz-VHF.
- D) 30-3000 KHZ-L/MF.

83- What is the optimum accuracy associated with VOR navigation on victor airways?

- A) $\pm 5^\circ$
- B) $\pm 2^\circ$
- C) $\pm 1^\circ$
- D) $\pm 3^\circ$

84- The Low Altitude VOR (L-VOR) is normally used:

- A) Long distance airways.
- B) For distance up to 40 NM above 1000 feet.
- C) Part of approach only.
- D) For distance up to 40 NM above 18000 feet.

85- The OFF flag comes into view when:

- A) Flying abeam the station.
- B) The signal receiving is too weak.
- C) Flying toward the station with uncorrected selected course.
- D) All answers are correct.

86- When flying on a radial to the station the positive identification of station passage is by:

- A) Fluctuating of CDI.
- B) Changing TO/FROM flag.
- C) OFF flag indication.
- D) By changing the selected course on dial.

87- DME displays distance in:

- A) Statute miles.
- B) Depended on construction of component.
- C) Nautical miles
- D) Statute/Nautical miles depended on pilot request.

88- Finding your exact position by using two VORs is called:

- A) VOR orientation
- B) Cross check
- C) Intercepting
- D) Bracketing

89- Depending on altitude and line of sight, you can use DME facility:

- A) up to 130 NM
- B) up to 45 NM
- C) up to 199 NM
- D) up to 100 NM

90- What is the range of NAV-COM, VHF frequency?

- A) 108.00-136.975 MHz.
- B) 108.00-117.95 kHz.
- C) 108.00-118.00 kHz.
- D) 108.00-117.95 MHz.

91- The most disadvantages of VOR operation is:

- A) Freedom from interference.
- B) Extreme accuracy.
- C) Automatic wind correction.
- D) Line of sight transmission.

92- The best procedure for flying toward NDB is:

- A) Homing
- B) Flying a heading equal to present bearing.
- C) Flying toward station by keeping the head of pointer at top index.
- D) Selecting a heading which is equal to magnetic bearing of aircraft at the present time

93- As altitude increase over the VOR, the cone of confusion will be greater.

- A) False
- B) True

94- DME shows ground speed and distance information when tuned to a:

- A) VOR station.
- B) DME station.
- C) VOR-DME station.
- D) All of the above.

95- What is the maximum permissible error for VOT?

- A) 5°
- B) 4°
- C) $\pm 6^\circ$ on the ground
- D) $\pm 4^\circ$ on the ground

96- The T- VOR may be used for approach and most accurate:

- A) Above 12500 feet.
- B) Above 1000 feet within 25 NM.
- C) At long distance and low altitude.
- D) Below 1000 feet within 25 NM.

97- Magnetic bearing from station is found by:

- A) RB +Aircraft heading.
- B) RB \pm Aircraft heading.
- C) RB + Aircraft heading $\pm 180^\circ$.
- D) It's read directly from tail of the needle.

98- The needle of movable-card ADF shows if magnetic heading set correctly on top index:

- A) Relative bearing
- B) Magnetic bearing from the station
- C) Magnetic bearing to the station
- D) B & C are correct

99- One of the advantages of VOR against NDB is:

- A) Interference - free
- B) more distance coverage
- C) line of sight
- D) B & C are correct

100- VOR signals are restricted by obstacles and terrain is known as:

- A) Interference - free
- B) Line of sight
- C) VOR limit
- D) VOR reception

101- (Refer to Figure P-01) What is the magnetic heading?

- A) 045°
- B) 180°
- C) 035°
- D) 060°

102- (Refer to Figure P-01) What is the magnetic bearing TO (QDM)?

- A) 045°
- B) 135°
- C) 180°
- D) 270°

103- (Refer to figure P-01) What is the magnetic bearing From (QDR)?

- A) 180°
- B) 360°
- C) 310°
- D) 330°

104- (Refer to Figure P-01) What is the relative bearing?

- A) 045°
- B) 135°
- C) 180°
- D) 270°

105- (Refer to Figure P-01) What is the aircraft heading to intercept magnetic bearing 310° from the station with 040° intercept angle?

- A) 270°
- B) 310°
- C) 320°
- D) 350°

106- (Refer to Figure P-01) What is the aircraft heading to intercept magnetic bearing 330° from the station with 030° intercept angle?

- A) 300°
- B) 270°
- C) 200°
- D) 170°

107- (Refer to Figure P-01) What is the optimum aircraft heading to intercept magnetic bearing 210° to the station?

- A) 150°
- B) 060°
- C) 330°
- D) 240°

108- (Refer to Figure P-01) What is the optimum aircraft heading to intercept magnetic bearing 150° to the station?

- A) 130°
- B) 150°
- C) 170°
- D) 210°

109- (Refer to Figure P-02) What is the aircraft relative bearing?

- A) 300°
- B) 310°
- C) 315°
- D) 320°

110- (Refer to Figure P-02) What is the aircraft magnetic bearing to (QDM) the station when flying on magnetic heading 045°?

- A) 000°
- B) 010°
- C) 280°
- D) 315°

111- (Refer to Figure P-02) What is the aircraft magnetic bearing to (QDM) the station when flying on magnetic heading 245°?

- A) 245°
- B) 215°
- C) 180°
- D) 200°

112- (Refer to Figure P-02) what is the aircraft magnetic bearing from (QDR) the station when flying on magnetic heading 145°?

- A) 230°
- B) 250°
- C) 280°
- D) 100°

113- (Refer to Figure P-02) What is the aircraft magnetic bearing from (QDR) the station when flying on magnetic heading 275°?

- A) 070°
- B) 050°
- C) 230°
- D) 315°

114- (Refer to Figure P-03) What is the magnetic heading?

- A) 010°
- B) 015°
- C) 020°
- D) 030°

115- (Refer to Figure P-03) What is the magnetic bearing to (QDM)?

- A) 015°
- B) 030°
- C) 050°
- D) 230°

116- (Refer to Figure P-030) What is the magnetic bearing from (QDR)?

- A) 045°
- B) 050°
- C) 210°
- D) 230°

117- (Refer to Figure P-03) What is the relative bearing?

- A) 035°
- B) 045°
- C) 050°
- D) 230°

118- (Refer to Figure P-03) What is the aircraft heading to intercept magnetic bearing 250° from the station with 040° intercept angle?

- A) 280°
- B) 290°
- C) 210°
- D) 090°

119- (Refer to Figure P-03) What is the aircraft heading to intercept magnetic bearing 200° from the station with 050° intercept angle?

- A) 230°
- B) 200°
- C) 150°
- D) 090°

120- (Refer to Figure P-03) What is the optimum aircraft heading to intercept magnetic bearing 075° to the station?

- A) 020°
- B) 200°
- C) 190°
- D) 290°

121- The basic information given by the ADF is:

- A) The relative bearing from the aircraft to the NDB.
- B) The magnetic bearing from the aircraft to the NDB.
- C) The true great circle track from the NDB to the aircraft.
- D) The magnetic direction of the loop aerial with reference to the sense aerial.

122- Flying in the vicinity of CB clouds and using ADF:

- A) The ANT position of the function switch should be used when listening for NDB identification.
- B) Strong static emitted from the CB may cause the ADF needle to deflect towards the CB.
- C) The static emitted from the CB will fade soon after you have passed it.
- D) All answers are correct.

123- Which of the following may cause inaccuracies in ADF bearings?

- A) Static interference, height effect, lack of failure warning.
- B) Station interference, mountain effect, selective availability.
- C) Coastal refraction, slant range, night effect.
- D) Lack of failure warning, station interference, static interference.

124- What action must be taken to receive a bearing from ADF?

- A) BFO on.
- B) Select the loop position.
- C) Both the loop and sense aerals must receive the signal.
- D) Select the ANT position.

125- Given:

Actual QDM: 210°

Actual HDG: 060°

Required QDM: 260°

What should be the first turn to intercept the required QDM?

- A) Left HDG 170°.
- B) Right HDG 215°.
- C) Right HDG 170°.
- D) Right HDG 260°.

126- An aircraft is homing to a radio beacon whilst maintaining a relative bearing of zero. If the magnetic heading decreases, the aircraft is experiencing:

- A) Left drift.
- B) Right drift.
- C) A wind from the west.
- D) Zero drift.

127- An moveable card ADF shows the bearing of a NDB as 020° and the heading of the airplane is 020° (M). In order to intercept an outbound course of 330° (from the NDB) at an angle of 40°, the airplanes heading should be altered to:

- A) 010°
- B) 330°
- C) 300°
- D) 040°

128- An aircraft is flying on a heading of 270° (M). The VOR OBS is also set to 270° with the full left deflection and FROM flag displayed in which sector is the aircraft from the VOR ground station:

- A) SE
- B) SW
- C) NW
- D) NE

129- An aircraft is inbound to NDB X on the 073° QDR and experiences a drift of 12°L. A position report is required when crossing the 133° QDR from NDB Y. If the aircraft is on track, the moveable card ADF indications at the reporting point will be:

- A) Heading: 085°; X Pointer: 073°; Y Pointer: 133°.
- B) Heading: 085°; X Pointer: 253°; Y Pointer: 133°.
- C) Heading: 265°; X Pointer: 073°; Y Pointer: 313°.
- D) Heading: 265°; X Pointer: 253°; Y Pointer: 313°.

130- An airplane is on radial 070° of a VOR, HDG is 270° If the OBS is set to 260°, and the CDI will show:

- A) Fly left TO.
- B) Fly right TO.
- C) Fly left FROM.
- D) Fly right FROM.

131- An aircraft is required to approach a VOR via the 104° radial. Which of the following settings should be made on the VOR indicator?

- A) 284° with the FROM flag showing.
- B) 284° with the TO flag showing.
- C) 104° with the TO flag showing.
- D) 104° with the FROM flag showing.

132- Given:

OBS for a VOR is selected to 090°

From/To indicator indicates TO.

CDI needle is deflected halfway to the right.

On what radial is the aircraft?

- A) 085°
- B) 275°
- C) 265°
- D) 095°

133- The indications Of a VOR in an aircraft tracking towards a VOR are 075°(M) with "TO" indication and the CDI needle centered. A co-located NDB shows 012° relative. What are the drift and heading in (M)?

- A) 12° right; 087°.
- B) 12° left; 063°.
- C) 12° right; 063°.
- D) 12° left; 087°.

134- An aircraft is tracking inbound to a VOR beacon on the 105° radial. The setting the pilot should put on the OBS and the CDI indications are:

- A) 285° TO
- B) 105° TO
- C) 285° FROM.
- D) 105° FROM.

135- An aircraft on a heading of 270° (M) has 273° set on the OBS and FROM indicated on the VOR L/R deviation indicator. The needle shows two dots fly left. The aircraft is on the:

- A) 277° radial.
- B) 089° radial.
- C) 097° radial.
- D) 269° radial.

136- An aircraft is required to approach a VOR station via the 244° radial. In order to obtain correct sense indications the deviation indicator should be set to:

- A) 064° with the FROM flag showing.
- B) 064° with the TO flag showing.
- C) 244° with the FROM flag showing.
- D) 244° with the TO flag showing.

137- In which situation speed indications on an airborne Distance Measuring Equipment (DME) most closely represent the groundspeed of an aircraft flying at FL400?

- A) When passing abeam the station and within 5 NM of it.
- B) When tracking directly towards the station at a range of 100 NM or more.
- C) When overhead the station, with no change of heading at transit.
- D) When tracking directly away from the station at a range of 10 NM.

138- The most accurate measurement of speed by DME for an aircraft at 30.000 ft will be when the aircraft is:

- A) Tracking towards the beacon at 10 NM.
- B) Overhead the beacon.
- C) Tracking away from the beacon at 100 NM.
- D) Passing abeam the beacon at 50 NM.

139- Groundspeed measurement using DME equipment is most accurate when flying:

- A) From the station at long range.
- B) Directly over the station.
- C) Towards the station at short range.
- D) Past the station at short range.

140- A DME is located at MSL. An aircraft passing vertically above the station at flight level FL360 will obtain a DME range of approximately:

- A) 11 NM
- B) 7 NM
- C) 6 NM
- D) 8 NM

141- An aircraft passes overhead a DME station at 12,000 feet above the station. At that time, the DME reading will be:

- A) Approximately 2 NM.
- B) 0 NM.
- C) FLAG/OFF, the aircraft is within the cone of silence.
- D) Fluctuating and not significant.

142- Refer to FIGURE P-04, what is the actual aircraft position?

- A) On R-360°
- B) On R-352°
- C) On R-007°
- D) On R-180°

143- Refer to FIGURE P-04, what is the minimum lateral distance to intercept R-360° when an aircraft flying at 30NM station?

- A) 0.5 NM
- B) 1.5 NM
- C) 2.5 NM
- D) 3.5 NM

144- What is the minimum lateral distance to intercept R-060° when an aircraft flying on R-052° and DME indicator shows 60NM to station?

- A) 6 NM
- B) 7 NM
- C) 8 NM
- D) 9 NM

145- Refer to FIGURE P-01, which magnetic bearing from will cross if an aircraft maintain its heading?

- A) 280°
- B) 250°
- C) 010°
- D) 070°

146- Refer to FIGURE P-02, which magnetic bearing from will cross if an aircraft flying on magnetic heading 140°?

- A) 095°
- B) 285°
- C) 305°
- D) 255°

147- Refer to FIGURE P-03, which magnetic bearing from will cross if an aircraft maintain its heading?

- A) 210°
- B) 220°
- C) 230°
- D) 240°

148- Refer to FIGURE P-04, which radial will cross if an aircraft flying on magnetic heading 045°?

- A) 350°
- B) 000°
- C) 010°
- D) 055°

149- What is the maximum DME error at a distance 10NM from station?

- A) 0.3 NM
- B) 0.5 NM
- C) 3 NM
- D) 5 NM

150- Given:

Actual QDM: 110°

Actual HDG: 080°

Required QDM: 060°

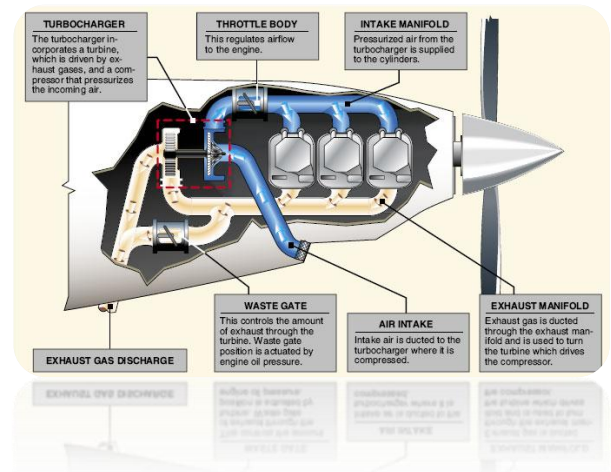
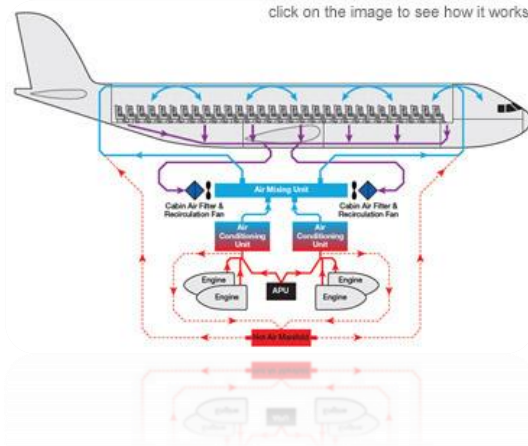
What should be the first turn to intercept the required QDM?

- A) Left HDG 170°.
- B) Left HDG 215°.
- C) Right HDG 150°.
- D) Right HDG 260°.

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	B	41	D	81	C	121	A
2	A	42	D	82	B	122	D
3	B	43	B	83	C	123	D
4	A	44	C	84	B	124	C
5	A	45	D	85	D	125	C
6	A	46	C	86	B	126	B
7	D	47	C	87	C	127	A
8	A	48	D	88	A	128	C
9	B	49	B	89	C	129	D
10	B	50	B	90	A	130	A
11	C	51	C	91	D	131	B
12	C	52	A	92	A	132	B
13	B	53	D	93	B	133	C
14	D	54	A	94	C	134	A
15	C	55	B	95	D	135	A
16	A	56	C	96	B	136	B
17	B	57	B	97	C	137	B
18	B	58	D	98	C	138	C
19	D	59	C	99	A	139	A
20	D	60	B	100	B	140	C
21	A	61	A	101	A	141	A
22	D	62	C	102	C	142	C
23	D	63	D	103	B	143	D
24	A	64	B	104	B	144	C
25	A	65	B	105	A	145	C
26	B	66	D	106	A	146	D
27	B	67	C	107	A	147	D
28	B	68	B	108	D	148	C
29	C	69	D	109	C	149	B
30	A	70	D	110	A	150	C
31	B	71	D	111	D		
32	D	72	D	112	C		
33	B	73	A	113	B		
34	C	74	A	114	B		
35	C	75	A	115	C		
36	A	76	B	116	D		
37	C	77	C	117	A		
38	B	78	A	118	B		
39	B	79	C	119	C		
40	B	80	B	120	A		

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System



1- The part of piston engine that transforms reciprocating movement into rotary motion is termed the:

- A) Crankshaft.
- B) Piston.
- C) Camshaft.
- D) Reduction gear.

2- Specific fuel consumption for piston engine aircraft is defined as the:

- A) Designed fuel consumption for a given RPM.
- B) Mass of fuel required to produce unit power for unit time.
- C) Quantity of fuel required to run the engine for one minute at maximum operating conditions.
- D) Maximum fuel consumption of the aircraft.

3- Which components constitute a crank assembly?

- A) Crankshaft, camshaft, valve springs.
- B) Crankcase, crankshaft, pistons and connecting rods.
- C) Crankshaft, pistons and connecting rods.
- D) Propeller, crankshaft, connecting rods.

4- The compression ratio of a piston engine is the ratio of the:

- A) Area of the piston to the cylinder volume.
- B) Weight of the air induced to its weight after compression.
- C) Volume of the cylinder with the piston at bottom dead center to that with the piston at top dead center.
- D) Diameter of the bore to the piston stroke.

5- The crankcase is the component which:

- A) Provides a mounting for an all cooler.
- B) Provides a mounting point for most of the engine components and in which are the main rotating assemblies located.
- C) Converts reciprocating motion into rotary motion.
- D) Operates within the float chamber.

6- Assuming the modified Otto cycle, what is the position of the inlet and exhaust valve at the end of the exhaust stroke?

- A) Inlet closed and exhaust open.
- B) Both valves closed.
- C) Both valves open.
- D) Inlet open and exhaust closed.

7- A reciprocating spark ignition engine works on the principle of the:

- A) Constant volume Otto cycle.
- B) Constant pressure Otto cycle.
- C) Constant volume Brayton cycle.
- D) Constant pressure Brayton cycle.

8- During the compression stroke:

- A) The volume decreases and the temperature increases.
- B) The temperature remains constant and the volume decreases.
- C) The volume increases and the temperature decreases.
- D) The volume remains constant and the temperature increases.

9- A cylinder head temperature gauge measures:

- A) The temperature of the hottest cylinder.
- B) The temperature of all the cylinders and gives an average reading.
- C) The temperature of the coolest cylinder.
- D) The temperature of the two cylinders furthest away from each other divided by two.

10- In a four-stroke engine, when the piston is at BDC at the end of the power stroke the position of the valves is: (inlet/outlet)

- A) Closed/closed
- B) Open/open
- C) Open/closed
- D) Closed/open

11- What are modern piston aero-engines constructed from?

- A) Pressed steel.
- B) Stainless steel.
- C) Dense alloys.
- D) Lightweight alloys.

12- In a four-stroke piston engine, the only "driving" stroke is:

- A) Compression
- B) Intake
- C) Firing-expansion
- D) Exhaust

13- The five events of a four-stroke cycle engine in the order of their occurrence:

- A) Intake, ignition, compression, power, exhaust.
- B) Intake, power, compression, ignition, exhaust.
- C) Intake, compression, ignition, power, exhaust.
- D) Intake, ignition, power, compression, exhaust.

14- If the exhaust valve of a four-stroke cycle engine is closed and the intake valve is just closing, the piston is on the:

- A) Intake stroke.
- B) Power stroke.
- C) Exhaust stroke.
- D) Compression stroke.

15- What does valve overlap promote?

- A) Lower intake manifold pressure and temperature.
- B) A back-flow of gases across the cylinder.
- C) An overlap of the power and intake strokes.
- D) Better scavenging and cooling characteristics.

16- At what speed must a crankshaft turn if each cylinder of a four-stroke cycle engine is to be fired 800 times a minute?

- A) 200 RPM
- B) 800 RPM
- C) 1600 RPM
- D) 3200 RPM

17- Prior to starting the engine the manifold pressure gauge usually indicates approximately 29" Hg. This is because the:

- A) Pointer on the gauge is stuck at the full-power indication.
- B) Throttle is in full-open position.
- C) Throttle is closed, trapping a high air pressure in the manifold.
- D) Pressure within the manifold is the same as atmospheric pressure.

18- Pre-ignition refers to the condition that may arise when:

- A) The mixture is ignited before the piston has reached top dead center.
- B) The mixture is ignited by abnormal conditions within the cylinder before the spark occurs at the plug.
- C) A rich mixture is ignited by the sparking plugs.
- D) The sparking plug ignites the mixture too early.

19- The vapour lock is:

- A) The exhaust gases obstructions caused by an engine overheating.
- B) A stoppage in a fuel feeding line caused by a fuel vapour bubble.
- C) The effect of the water vapour bubbles in the induction manifold caused by the condensation.
- D) The abnormal mixture enrichment caused by greater gasoline vaporization in the carburetor.

20- The octane rating of a fuel characterizes the:

- A) The anti-knock capability.
- B) Fuel volatility.
- C) Quantity of heat generated by its combustion.
- D) Fuel electrical conductivity.

21- Vapour lock is:

- A) Vaporizing of fuel prior to reaching the carburetor.
- B) The formation of water vapour in a fuel system.
- C) Vaporizing of fuel in the carburetor.
- D) The inability of a fuel to vaporize in the carburetor.

22- A piston engine may use a fuel of a different grade than the recommended:

- A) Provided that the grade is higher.
- B) Provided that the grade is lower.
- C) Never.
- D) Provided that it is an aeronautical petrol.

23- In addition to the fire hazard introduced, excessive priming should be avoided because:

- A) The gasoline dilutes the oil and necessitates changing oil.
- B) It drains the carburetor float chamber.
- C) It fouls the spark plugs.
- D) It washes the lubricant of cylinder walls.

24- If an engine detonates during climb-out, the normal corrective action would be to:

- A) Lean the mixture.
- B) Increase the rate of climb.
- C) Retard the throttle.
- D) Apply carburetor heat.

25- The cylinder head and oil temperatures may exceed their normal operating ranges if:

- A) A higher octane rating than specified for the engine is used.
- B) A lower octane rating than specified for the engine is used.
- C) The engine is operated at a higher than normal oil pressure.
- D) The engine is operated at a too rich mixture.

26- The function of the primer pump is to:

- A) Provide additional fuel for engine start.
- B) Serve as an alternate pump in case of engine driven pump failure.
- C) Serve as main supply pump in a fuel injection system.
- D) Inject additional fuel during engine acceleration.

27- Which one of the following factors would be most likely to increase the possibility of detonation occurring within a piston engine?

- A) The use of a fuel with a high octane rating as compared to the use of one with a low octane rating.
- B) High cylinder head temperature.
- C) Using an engine with a low compression ratio.
- D) Slightly retarding the ignition timing.

28- The fuel flow to a piston engine will vary with:

- A) RPM and throttle position.
- B) RPM only.
- C) RPM, throttle position and mixture setting.
- D) RPM and mixture setting only.

29- The difference between Avgas 100 and Avgas 100LL fuel respectively are:

1) Color

2) Anti-knock value

- A) (1) Same; (2) same
- B) (1) Same; (2) different
- C) (1) Different; (2) same
- D) (1) Different; (2) different

30- The colour of 100 LL Avgas is:

- A) Green
- B) Red
- C) Purple
- D) Blue

31- The auxiliary fuel pumps are:

- A) Mechanically driven by the engine and are connected in series with the main fuel booster pump.
- B) Mechanically driven by the engine and are connected in parallel with the main fuel booster pump.
- C) Electrically driven and are connected in parallel with the main fuel booster pump.
- D) Electrically driven and are connected in series with the main fuel booster pump.

32- The auxiliary fuel pumps installed on single-engine low-wing aeroplanes are typically used:

- 1) During takeoff
- 2) During cruise
- 3) During landing
- 4) In emergency situations
- 5) In case of a suspected vapour lock
- 6) In case of failure of the engine fuel pump

- A) 1,2,3,4,5,6
B) 1,3,4,5, 6
C) 1,2,3,4,5
D) 1,3,4,5

33- In which sections of the carburetor would icing most likely occur?

- A) Main air bleed and main discharge nozzle.
B) Float chamber and fuel inlet filter.
C) Accelerator pump and main metering jet.
D) Venturi and the throttle valve.

34- With respect to a piston-engine aircraft, ice in the carburetor:

- A) Will only form at OATs below the freezing point of fuel.
B) Will only form at OATs below +10 °C.
C) Will only form at OATs below the freezing point of water.
D) May form at OATs higher than +10 °C.

35- In an engine equipped with a float-type carburetor, the low temperature that causes carburetor ice is normally the result of:

- A) Compression of air at the carburetor venturi.
B) Low volatility of aviation fuel.
C) Vaporization of fuel and expansion of the air in the carburetor.
D) Freezing temperature of the air entering the carburetor.

36- Air flowing through a venturi of a carburetor causes:

- A) A drop of pressure at the throat.
B) A reduction of air velocity at the throat.
C) A rise of pressure at the throat.
D) An increase in velocity and pressure.

37- Regarding carburetor ice, state the environmental caution areas most conducive for the formation of this type of ice:

- A) Temperature between +5°C and +18°C, visible moisture or relative humidity greater than 80%.
- B) Temperature between -5°C and +18°C, visible moisture or relative humidity greater than 80%.
- C) Temperature less than 0°C and clouds present.
- D) Temperature between +5°C and +18°C and clouds present.

38- The amount of fuel that flows through the carburetor is directly controlled by the:

- A) Throttle valve.
- B) Mixture control valve.
- C) Airflow through the carburetor venturi.
- D) Main metering jet.

39- The presence of carburetor ice in an airplane equipped with a fixed-pitch propeller can be verified by applying carburetor heat and noting:

- A) An increase in RPM and then a gradual decrease in RPM.
- B) A decrease in RPM and then constant RPM.
- C) An immediate increase in RPM with no further change in RPM.
- D) A decrease in RPM, followed by an increase in RPM.

40- Icing of the carburetor can take place:

- A) When the temperature drops below -5°C.
- B) When the temperature drops and precipitation occurs.
- C) When the temperature drops and sufficient moisture is present for sublimation.
- D) When the temperature drops below 0°C.

41- In an air-cooled engine:

- A) The air cooler matrix is water cooled.
- B) Fins, baffles and deflectors increase the cylinder and head surface areas.
- C) The header tank is placed above the system.
- D) Air is ducted through the oil cooler first.

42- On an air-cooled reciprocating engine the cooling airflow is provided by:

- A) Supercharger outlet.
- B) A temperature controlled by-pass valve.
- C) Ram air.
- D) Selection.

43- In liquid-cooled engines, the composition by volume of the coolant mixture is:

- A) 30% ethylene glycol and 70% water.
- B) 60% ethylene glycol and 40% water.
- C) 50% ethylene glycol and 50% water.
- D) 70% ethylene glycol and 30% water.

44- The reading on the oil pressure gauge is the:

- A) Pressure of the oil on the outlet side of the pressure pump.
- B) Difference between the pressure pump pressure and the scavenge pump pressure.
- C) Pressure in the oil tank reservoir.
- D) Pressure of the oil on the inlet side of the pressure pump.

45- For internal cooling, reciprocating engines are especially dependent on:

- A) A rich fuel/air mixture.
- B) The circulation of lubricating oil.
- C) A properly functioning thermostat.
- D) A lean fuel/air mixture.

**46- In very cold weather the pilot notices slightly higher than normal oil pressure on startup.
This:**

- A) Is abnormal and requires the engine to be shut down.
- B) Is acceptable provided it returns to normal after start up.
- C) Is abnormal, but does not require an engine shut down.
- D) Indicates an incorrect oil type is being used and engine should be shut down immediately.

47- The lubricating system of an air-cooled piston engine is used to:

- A) Keep the engine warm.
- B) Reduce internal friction and provide cooling.
- C) To operate the fuel control unit.
- D) Operate constant speed propellers.

48- If the ground wire between the magneto and the ignition switch becomes disconnected, the most noticeable result will be that the engine:

- A) Will not operate at the left magneto.
- B) Cannot be shut down by turning the switch to the OFF position.
- C) Will not operate at the right magneto.
- D) Cannot be started with the switch in the ON position.

49- Ignition systems of piston engines are:

- A) Independent of the electrical system of the airplane.
- B) Dependent on the battery.
- C) Dependent on the DC generator.
- D) Dependent on the AC generator.

50- The purpose of an ignition switch is to:

- A) Connect the battery to the magneto.
- B) Connect the secondary coil to the distributor.
- C) Control the primary circuit of the magneto.
- D) Connect the contact breaker and condenser in series with the primary coil.

51- If an engine fails to stop with the magneto switch in OFF position, the cause may be:

- A) Excessive carbon formation in cylinder head.
- B) Switch wire grounded.
- C) Defective condenser.
- D) Fouled spark plugs.

52- When is spark plug fouling most likely to occur?

- A) In the climb if you have not adjusted the mixture.
- B) Cruise power.
- C) In the descent if you have not adjusted the mixture.
- D) Maximum takeoff power.

53- Prolonged running at low RPM may have an adverse effect on the efficiency of the:

- A) Carburetor.
- B) Sparking plugs.
- C) Oil pump.
- D) Fuel filter.

54- The most common type of magneto is the:

- A) Rotating magnet.
- B) Rotating armature.
- C) Impulse starter.
- D) High tension booster coil.

55- Ignition systems of a running piston engine receive electrical energy from:

- A) Capacitors.
- B) Batteries.
- C) Generators.
- D) Rotating permanent magnets.

56- Once the engine has started, ignition systems of piston engines are:

- A) Dependent on the DC generator.
- B) Dependent on the battery.
- C) Independent of the electrical system of the aircraft.
- D) Dependent on the AC generator.

57- With an aircraft fitted with a fixed-pitch propeller, during flight at normal cruising speed, one magneto fails completely. This will first cause:

- A) Loss of approximately 100 RPM.
- B) An additional load on the other magneto.
- C) Excessive vibration.
- D) The engine to overheat.

58- In a four-stroke cycle aircraft engine, when does the ignition event take place?

- A) After the piston reaches TDC on intake stroke.
- B) Before the piston reaches TDC on compression stroke.
- C) After the piston reaches TDC on power stroke.
- D) After the piston reaches TDC on compression stroke.

59- When performing a magneto ground check on an engine, correct operation is indicated by:

- A) A decrease in manifold pressure.
- B) An increase in RPM.
- C) No drop in RPM.
- D) A slight drop in RPM.

60- In a piston engine, the purpose of an altitude mixture control is:

- A) Enrich the mixture strength due to decreased air density at altitude.
- B) Weaken the mixture strength because of reduced exhaust back pressure at altitude.
- C) Prevent a weak cut when the throttle is opened rapidly at altitude.
- D) Correct for variations in the fuel air ratio due to decreased air density at altitude.

61- When altitude increases without adjustment of the mixture ratio, the piston engine performance is affected because of a:

- A) Decreasing of air density for a constant quantity of fuel.
- B) Constant air density for a bigger quantity of fuel.
- C) Increasing of air density for a smaller quantity of fuel.
- D) Decreasing of air density for a smaller quantity of fuel.

62- In a piston engine if the air to fuel ratio is approximately 9:1, the mixture is:

- A) Lean.
- B) Rich.
- C) Too weak to support combustion.
- D) Normal.

63- An EGT (Exhaust Gas Temperature) indicator for a piston engine is used to:

- A) Control the carburetor inlet air flow.
- B) Control the cylinder head temperature.
- C) Assist the pilot to set the correct mixture.
- D) Control the fuel temperature.

64- An excessively rich mixture can be detected by:

- A) Black smoke from exhaust.
- B) High cylinder head temperatures.
- C) White smoke from exhaust.
- D) A long purple flame from exhaust.

65- Which statement is true concerning the effect of the application of carburetor heat?

- A) It reduces the density of air entering the carburetor, thus enriching the fuel/air mixture.
- B) It reduces the volume of air entering the carburetor, thus enriching the fuel/air mixture.
- C) It reduces the volume of air entering the carburetor, thus leaning the fuel/air mixture.
- D) It reduces the density of air entering the carburetor, thus leaning the fuel/air mixture.

66- From the cruise, with all the parameters correctly set, if the altitude is reduced, to maintain the same mixture the fuel flow should:

- A) Decrease.
- B) Increase.
- C) Remain the same.
- D) Increase or decrease, depending on the engine type.

67- Max. Exhaust Gas Temperature is theoretically associated with:

- A) Mixture ratio of 15:1.
- B) Cruising mixture setting.
- C) Full rich setting.
- D) Mixture ratio very close to idle cut-out.

68- The mixture control for a carburetor achieves its control by:

- A) Moving the butterfly valve through a separate linkage to the main throttle control.
- B) Varying the fuel supply to the main discharge tube.
- C) Altering the depression on the main discharge tube.
- D) Varying the air supply to the main discharge tube.

69- For piston engines, mixture ratio is the ratio between the:

- A) Volume of fuel and volume of air entering the cylinder.
- B) Mass of fuel and mass of air entering the cylinder.
- C) Volume of fuel and volume of air entering the, carburetor.
- D) Mass of fuel and volume of air entering the carburetor.

70- A rich mixture setting has to be used during climb segments. This results in a:

- A) Significant reduction of power.
- B) Higher efficiency.
- C) Lower cylinder head temperature.
- D) Higher torque.

71- When the pilot moves the mixture lever of a piston engine towards a lean position the:

- A) Volume of air entering the carburetor is reduced.
- B) Amount of fuel entering the combustion chamber is increased.
- C) Volume of air entering the carburetor is increased.
- D) Amount of fuel entering the combustion chamber is reduced.

72- As altitude increases, if the mixture is not leaned:

- A) The volume of air entering the carburetor remains constant and the fuel flow decreases.
- B) The density of air entering the carburetor decreases and the fuel flow remains almost constant.
- C) The volume of air entering the carburetor decreases and the fuel flow decreases.
- D) The density of air entering the carburetor decreases: and the fuel flow increases.

73- An air/fuel ratio of 18:1 would be considered as:

- A) Lean.
- B) Rich.
- C) Chemically correct.
- D) Critically solvent.

74- The best power mixture is that air/fuel ratio at which:

- A) The most power can be obtained for any given throttle setting.
- B) Climbs or descents can be made without adjusting the mixture control.
- C) Cylinder head temperatures are the coolest.
- D) A given power can be obtained with the highest manifold pressure or throttle setting.

75- Fixed-pitch propellers are usually designed for maximum efficiency at:

- A) Idling.
- B) Cruising speed.
- C) Full throttle.
- D) Takeoff.

76- The slipstream effect of a propeller is most prominent at:

- A) Low airspeeds with high power setting.
- B) High airspeeds with low power setting.
- C) High airspeeds with high power setting.
- D) Low airspeeds with low power setting.

77- The blade angle of a propeller is the angle between the:

- A) Reference chord line and the propeller plane of rotation.
- B) Reference chord line and the relative airflow.
- C) Reference chord line and the propeller axis of rotation.
- D) Plane of rotation and the relative airflow.

78- The angle of attack of a rotating propeller blade is measured between the blade chord or face and which of the following?

- A) The plane of blade rotation.
- B) Full low-pitch blade angle.
- C) The relative air stream.
- D) The geometric pitch angle required producing the same thrust.

79- The conditions under which you obtain the highest engine power are:

- A) Warm and dry air at high pressure.
- B) Warm and humid air at low pressure.
- C) Cold and humid air at high pressure.
- D) Cold and dry air at high pressure.

80- The power of a piston engine decreases during climb with a constant power lever setting, because of the decreasing:

- A) Temperature.
- B) Air density.
- C) Engine temperature.
- D) Humidity.

81- A normally aspirated engine has:

- A) A dual controller to maintain turbine speed.
- B) No power augmentation devices.
- C) A density controller.
- D) A density controller and a rate controller.

82- Detonation may lead to another problem, known as:

- A) Pre-ignition.
- B) Vapor lock.
- C) Combustion.
- D) Flameout.

83- The uncontrolled combustion of fuel/air mixture in advance of normal ignition is known as:

- A) Detonation
- B) Pre-ignition.
- C) Spark plug fouling.
- D) Volatility.

84- What is the main purpose of incorporating a dual ignition system on an aircraft engine?

- A) To improve engine performance.
- B) Uniform heat distribution.
- C) To balance cylinder head pressure.
- D) Overall cooling the cylinders.

85- What is most likely to cause an engine to continue running after the ignition switch is turned off?

- A) Overheated exhaust manifold.
- B) Carbon deposits glowing on the spark plugs.
- C) Magneto ground wire is in contact with engine casing.
- D) A broken magneto ground wire.

86- Which component of the fuel system allows air pressure inside the tank to remain the same as the outside the tank?

- A) Fuel strainer.
- B) Primer.
- C) Fuel filler cap.
- D) Fuel tank vents.

87- Why is it considered good practice to fill the fuel tanks after the last flight of the day?

- A) To force any existing water to the top of the tank away from the fuel lines.
- B) To prevent moisture from condensing by eliminating air from the tanks.
- C) To prevent expansion of fuel by eliminating air from the tanks.
- D) A & C are correct.

88- What should be the pilot's first action after starting an aircraft engine?

- A) Turn the avionics master switch on.
- B) Test the brakes and set the parking brakes.
- C) Adjust RPM and check engine gauges for proper indications.
- D) Turn the beacon light on.

89- When hand-starting an airplane engine, it is very important that a competent pilot:

- A) Be in the cockpit and call out all the commands.
- B) Be at the controls.
- C) Hand-prop the airplane.
- D) Be in front of the airplane and check the start check list.

90- What method is helpful in reducing the engine temperature?

- A) Leaning the mixture.
- B) Increasing the rate of climb.
- C) Reducing the airspeed.
- D) Reducing power.

91- What is the primary purpose of the battery in aircraft electrical system?

- A) Providing a means of starting the engine.
- B) To provide standby or emergency electrical power in the event of alternator malfunction.
- C) Operation of electrical components without starting the engine.
- D) A & B are correct.

92- An abnormally high engine oil temperature could be due to:

- A) Operating with an excessively low oil level.
- B) Operating with an excessively rich mixture.
- C) Operating with a high viscosity oil.
- D) Using higher grade of fuel instead of recommended grade.

93- What will happen as a result of an excessively high engine temperature?

- A) Nothing will happen to the aircraft engine.
- B) Heat-conducting hoses and warping of the cylinder cooling fins will be damaged.
- C) Loss of power, excessive oil consumption, detonation and will also lead to serious permanent internal engine damage.
- D) Improve engine performance continuously.

94- One procedure that helps in cooling an overheating engine is to:

- A) Increase the rate of climb and add power.
- B) Decrease your rate of climb and add power.
- C) Reduce your rate of climb and increase the airspeed.
- D) Decrease your rate of climb and lean the mixture.

95- The use of carburetor heat:

- A) Enriches the Fuel/air mixture because the heated air is denser than the outside air that had been entering the cylinder.
- B) Enriches the Fuel/air mixture because the heated air is less dense than the outside air that had been entering the cylinder.
- C) Will not enrich the fuel/air mixture.
- D) The fuel/air mixture to become leaner.

96- With regard to carburetor ice, float-type carburetor systems in comparison to fuel injection systems are generally considered to be:

- A) Less susceptible to icing.
- B) More susceptible to icing.
- C) Susceptible to icing when there is visible moisture in the air.
- D) Least likelihood to form ice crystals on the carburetor components.

97- The operating principle of the float-type carburetor is based on:

- A) Decrease in air velocity in the throat of a venturi, causing an increase in air pressure.
- B) Difference in air pressure at the venturi throat and the air inlet.
- C) The shape of the venturi that creates an area of high pressure.
- D) A & C are correct.

98- The process of converting the..... in fuel into Takes place in the cylinder of reciprocating engine.

- A) Mechanical energy – chemical energy.
- B) Chemical energy – mechanical energy.
- C) Thermal energy – chemical energy.
- D) Kinetic energy – potential energy.

99- The venturi in the carburetor choke tube creates:

- A) A positive pressure over the discharge nozzle.
- B) A depression over the fuel discharge nozzle.
- C) A positive pressure at the throttle valve.
- D) A decrease in the velocity of the air entering the engine.

100- The greater the weight of combustible mixture in the cylinders:

- A) The weaker is the mixture.
- B) The more the power decreases.
- C) The lower the cylinder head temperature will be.
- D) The greater the power developed by the engine.

Question	Answer	Question	Answer	Question	Answer	Question	Answer
1	A	26	A	51	A	76	A
2	B	27	B	52	A	77	A
3	C	28	C	53	B	78	C
4	C	29	C	54	A	79	D
5	B	30	D	55	D	80	B
6	C	31	C	56	C	81	B
7	A	32	B	57	A	82	A
8	A	33	D	58	B	83	B
9	A	34	D	59	D	84	A
10	D	35	C	60	D	85	D
11	D	36	A	61	A	86	D
12	C	37	B	62	B	87	B
13	C	38	C	63	C	88	C
14	D	39	D	64	A	89	B
15	D	40	C	65	A	90	D
16	C	41	B	66	B	91	D
17	D	42	C	67	A	92	A
18	B	43	A	68	B	93	C
19	B	44	A	69	B	94	C
20	A	45	B	70	C	95	B
21	A	46	B	71	D	96	B
22	A	47	B	72	B	97	B
23	D	48	B	73	A	98	B
24	C	49	A	74	A	99	B
25	B	50	C	75	B	100	D

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FIGURES

FIGURE P-01



FIGURE P-02



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FIGURE P-03

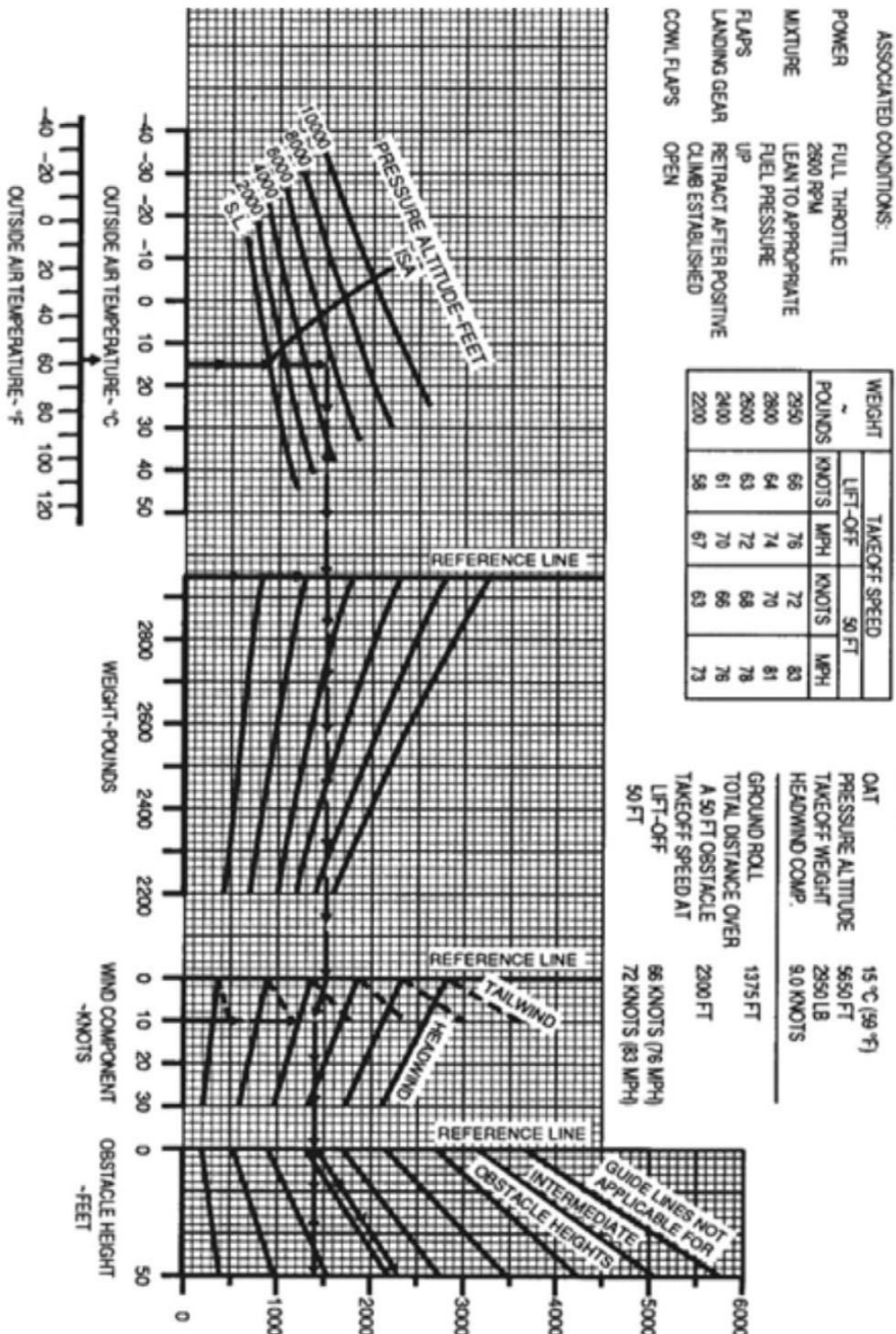


FIGURE P-04



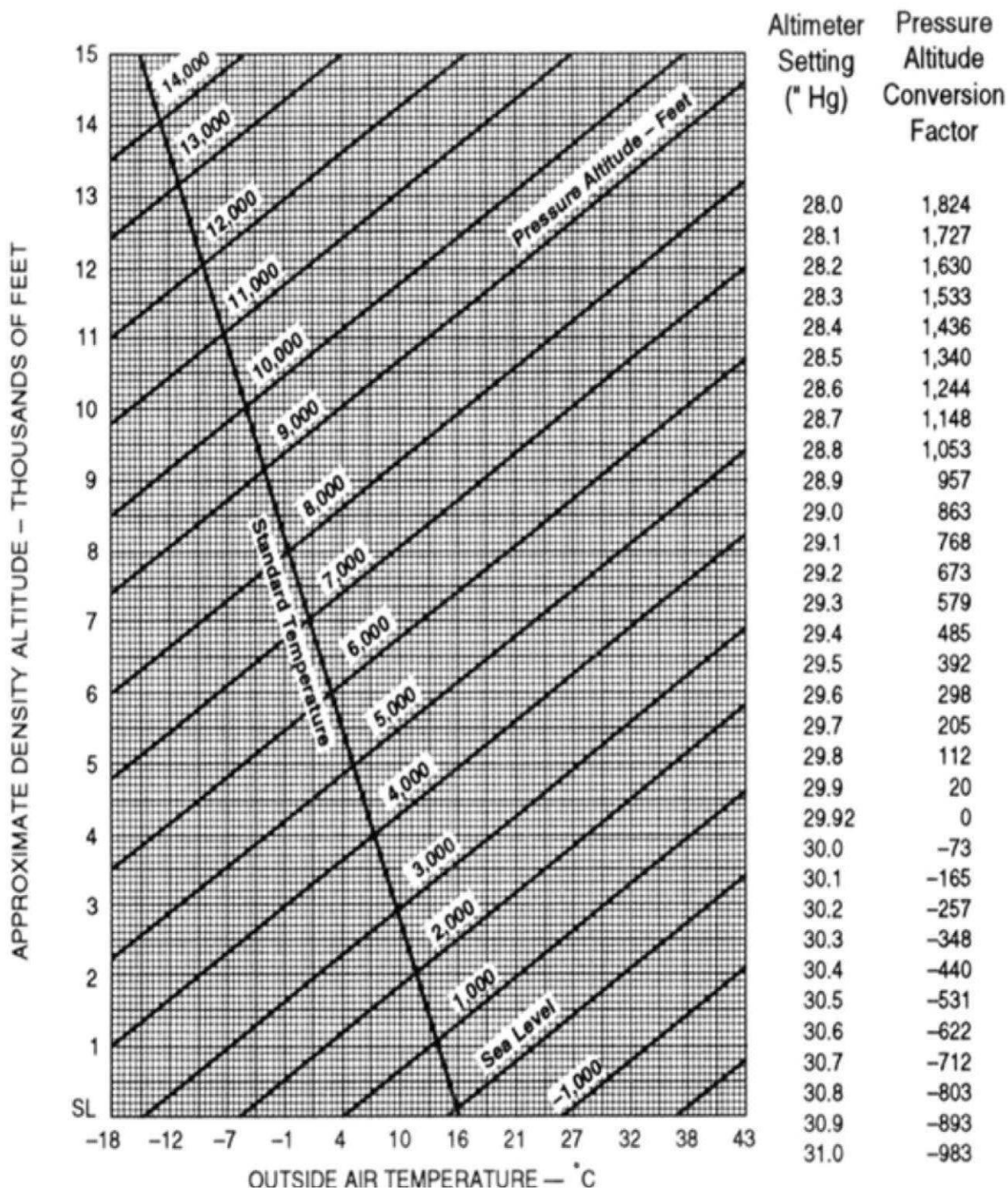
TAKEOFF DISTANCE

FIGURE P-05



DENSITY ALTITUDE CHART

FIGURE P-06



NORMAL CLIMB – 110 KIAS

FIGURE P-07

CONDITIONS:
Flaps Up
Gear Up
2500 RPM
30 Inches Hg
120 PPH Fuel Flow
Cowl Flaps Open
Standard Temperature

NOTES:

1. Add 16 pounds of fuel for engine start, taxi and takeoff allowance.
2. Increase time, fuel and distance by 10% for each 7 °C above standard temperature.
3. Distances shown are based on zero wind.

WEIGHT LBS	PRESS ALT FT	RATE OF CLIMB FPM	FROM SEA LEVEL		
			TIME MIN	FUEL USED POUNDS	DISTANCE NM
4000	S.L.	605	0	0	0
	4000	570	7	14	13
	8000	530	14	28	27
	12,000	485	22	44	43
	16,000	430	31	62	63
	20,000	365	41	82	87
3700	S.L.	700	0	0	0
	4000	665	6	12	11
	8000	625	12	24	23
	12,000	580	19	37	37
	16,000	525	26	52	53
	20,000	460	34	68	72
3400	S.L.	810	0	0	0
	4000	775	5	10	9
	8000	735	10	21	20
	12,000	690	16	32	31
	16,000	635	22	44	45
	20,000	565	29	57	61

FIGURE P-08

CRUISE POWER SETTINGS																											
65% MAXIMUM CONTINUOUS POWER (OR FULL THROTTLE) 2800 POUNDS																											
PRESS. ALT.		ISA -20 °C (-36 °F)										STANDARD DAY (ISA)										ISA +20 °C (+36 °F)					
		IOAT	ENGINE SPEED	MAN. PRESS.	FUEL FLOW PER ENGINE			TAS	IOAT	ENGINE SPEED	MAN. PRESS.	FUEL FLOW PER ENGINE			TAS	IOAT	ENGINE SPEED	MAN. PRESS.	FUEL FLOW PER ENGINE			TAS					
					IN HG	PSI	GPH					IN HG	PSI	GPH					IN HG	PSI	GPH						
FEET	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH			
SL	27	-3	2450	20.7	6.6	11.5	147	169	63	17	2450	21.2	6.6	11.5	150	173	99	37	2450	21.8	6.6	11.5	153	176			
2000	19	-7	2450	20.4	6.6	11.5	149	171	55	13	2450	21.0	6.6	11.5	153	176	91	33	2450	21.5	6.6	11.5	156	180			
4000	12	-11	2450	20.1	6.6	11.5	152	175	48	9	2450	20.7	6.6	11.5	156	180	84	29	2450	21.3	6.6	11.5	159	183			
6000	5	-15	2450	19.8	6.6	11.5	155	178	41	5	2450	20.4	6.6	11.5	158	182	79	26	2450	21.0	6.6	11.5	161	185			
8000	-2	-19	2450	19.5	6.6	11.5	157	181	36	2	2450	20.2	6.6	11.5	161	185	72	22	2450	20.8	6.6	11.5	164	189			
10000	-8	-22	2450	19.2	6.6	11.5	160	184	28	-2	2450	19.9	6.6	11.5	163	188	64	18	2450	20.3	6.5	11.4	166	191			
12000	-15	-26	2450	18.8	6.4	11.3	162	186	21	-6	2450	18.8	6.1	10.9	163	188	57	14	2450	18.8	5.9	10.6	163	188			
14000	-22	-30	2450	17.4	5.8	10.5	159	183	14	-10	2450	17.4	5.6	10.1	160	184	50	10	2450	17.4	5.4	9.8	160	184			
16000	-29	-34	2450	16.1	5.3	9.7	156	180	7	-14	2450	16.1	5.1	9.4	156	180	43	6	2450	16.1	4.9	9.1	155	178			

NOTES:

1. Full throttle manifold pressure settings are approximate.

2. Shaded area represents operation with full throttle.

FIGURE P-09

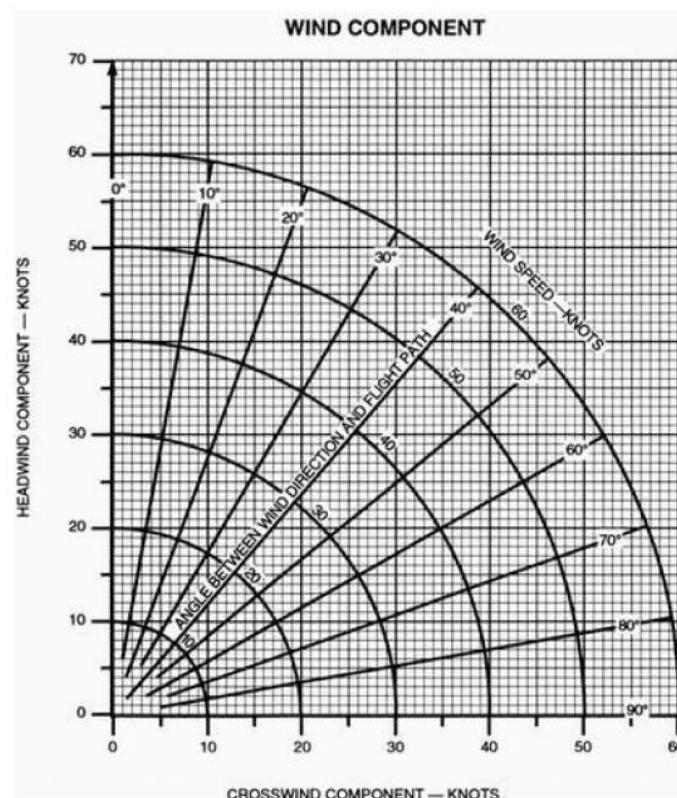


FIGURE P-10

LANDING DISTANCE

ASSOCIATED CONDITIONS:

POWER RETARDED TO MAINTAIN
900 FT/on FINAL APPROACH
FLAPS DOWN
LANDING GEAR DOWN
RUNWAY PAVED, LEVEL, DRY SURFACE
APPROACH SPEED IAS AS TABULATED
BRAKING MAXIMUM

WEIGHT ~ POUNDS	SPEED AT 50 FT	
	KNOTS	MPH
2950	70	80
2800	68	78
2600	65	75
2400	63	72
2200	60	69

EXAMPLE:

OAT 25 °C (77 °F)
PRESSURE ALTITUDE 3965 FT
WEIGHT 2814 LB
WIND COMPONENT 9.0 KNOTS (HEADWIND)
GROUND ROLL 1080 FT
TOTAL OVER 50 FT OBSTACLE 1700 FT
APPROACH SPEED 68 KNOTS (78 MPH)

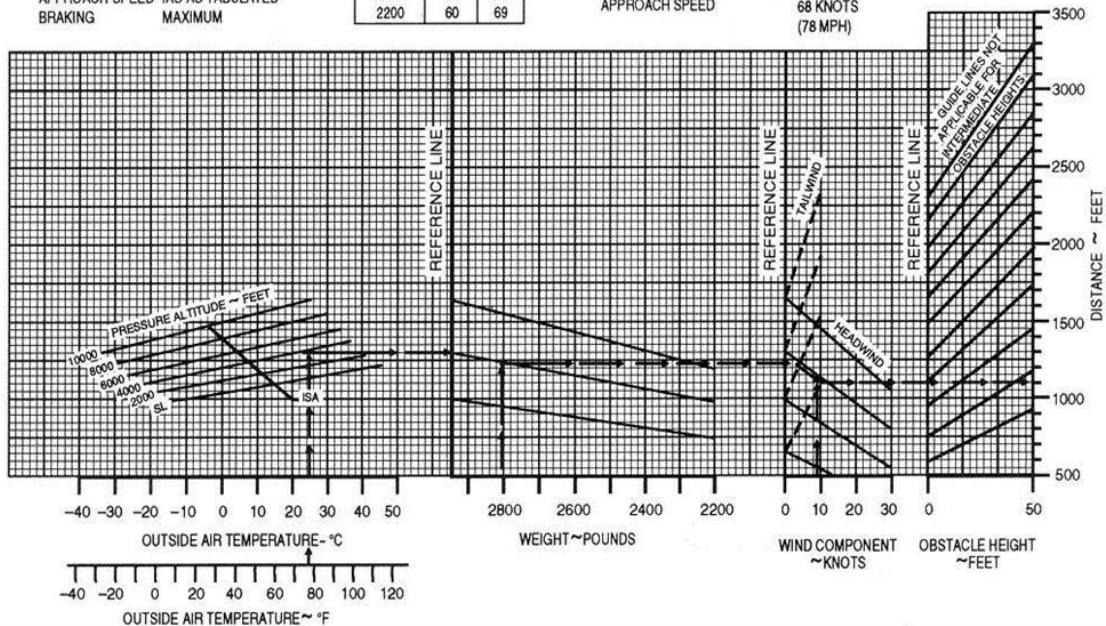


FIGURE P-10-A

LANDING DISTANCE					FLAPS LOWERED TO 40° - POWER OFF HARD SURFACE RUNWAY - ZERO WIND				
GROSS WEIGHT LB	APPROACH SPEED, IAS, MPH	AT SEA LEVEL & 59 °F		AT 2500 FT & 50 °F		AT 5000 FT & 41 °F		AT 7500 FT & 32 °F	
		GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS
1600	60	445	1075	470	1135	495	1195	520	1255

NOTES: 1. Decrease the distances shown by 10% for each 4 knots of headwind.
2. Increase the distance by 10% for each 60 °F temperature increase above standard.
3. For operation on a dry, grass runway, increase distances (both "ground roll" and "total to clear 50 ft obstacle") by 20% of the "total to clear 50 ft obstacle" figure.

Figure P-11

Time, Fuel and Distance to Climb

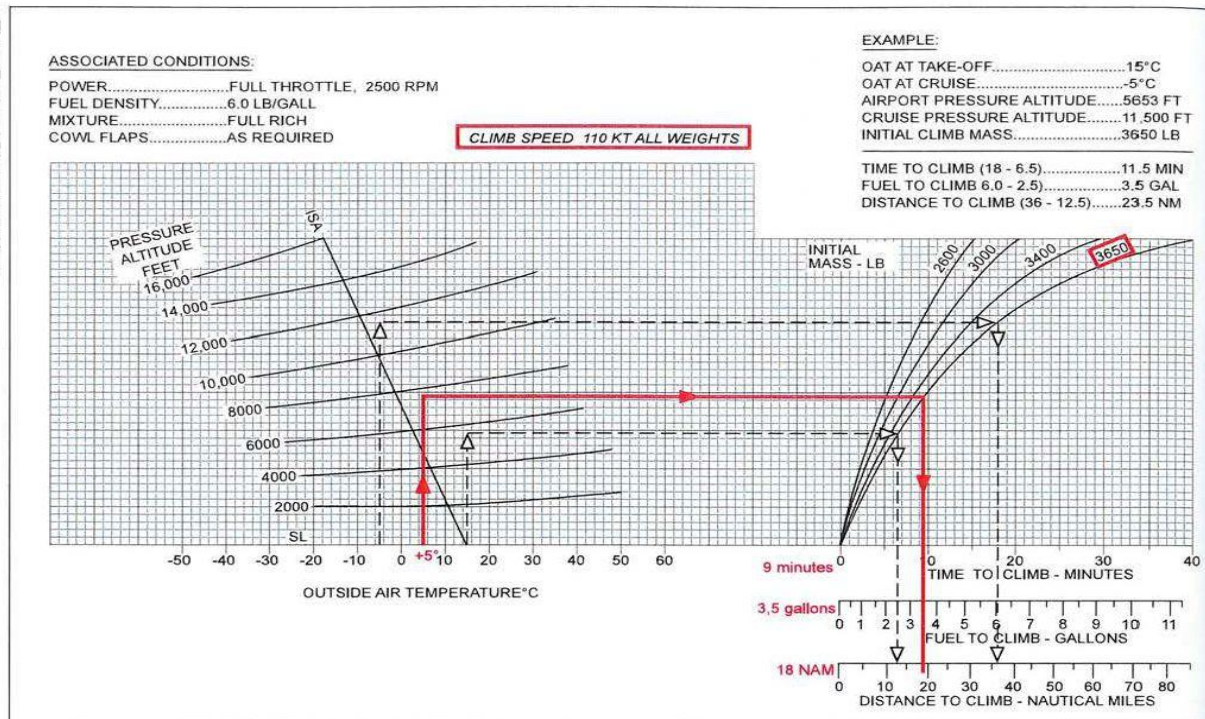


Figure P-12

Climb

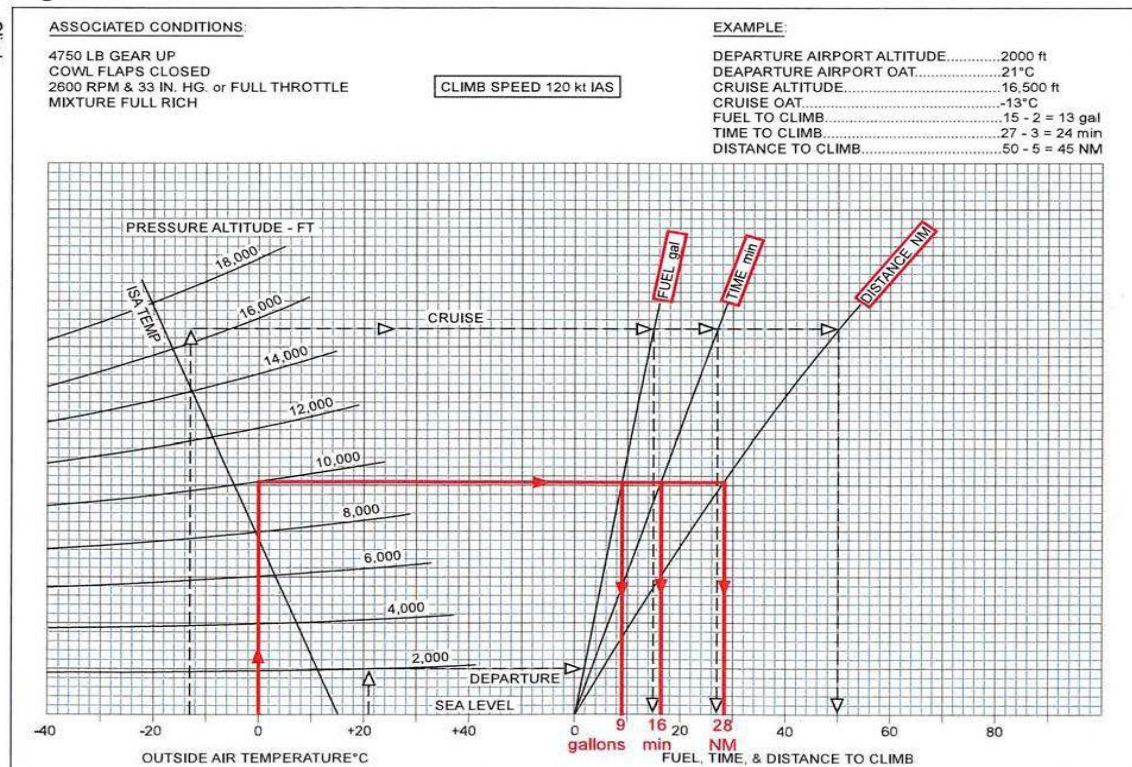


Figure P-13

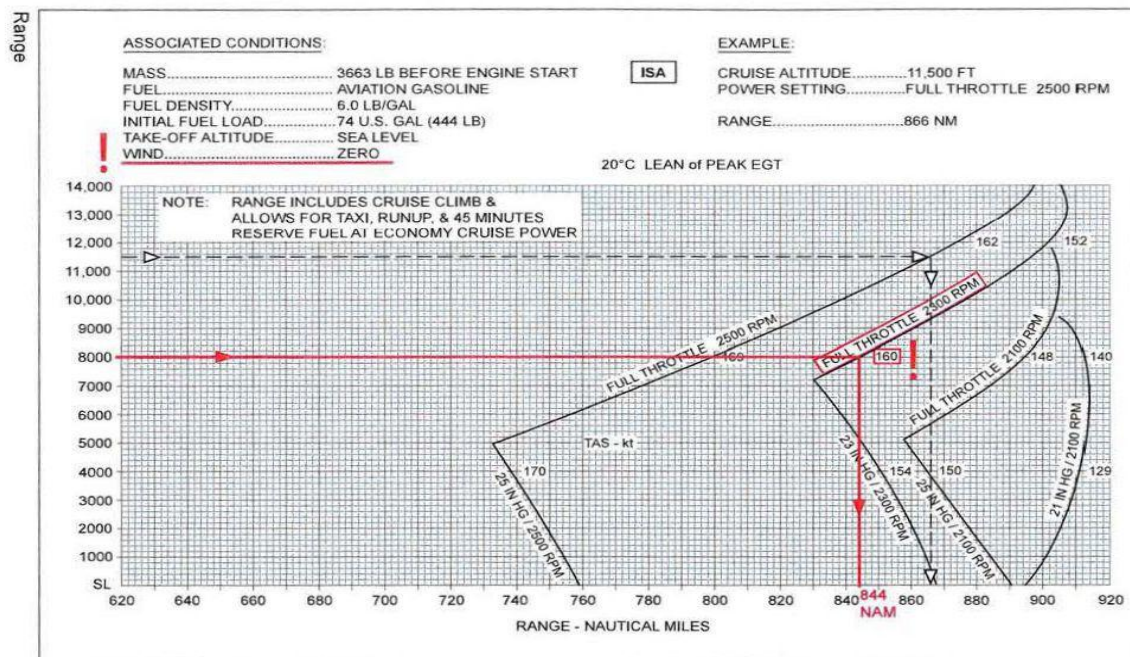


Figure P-14

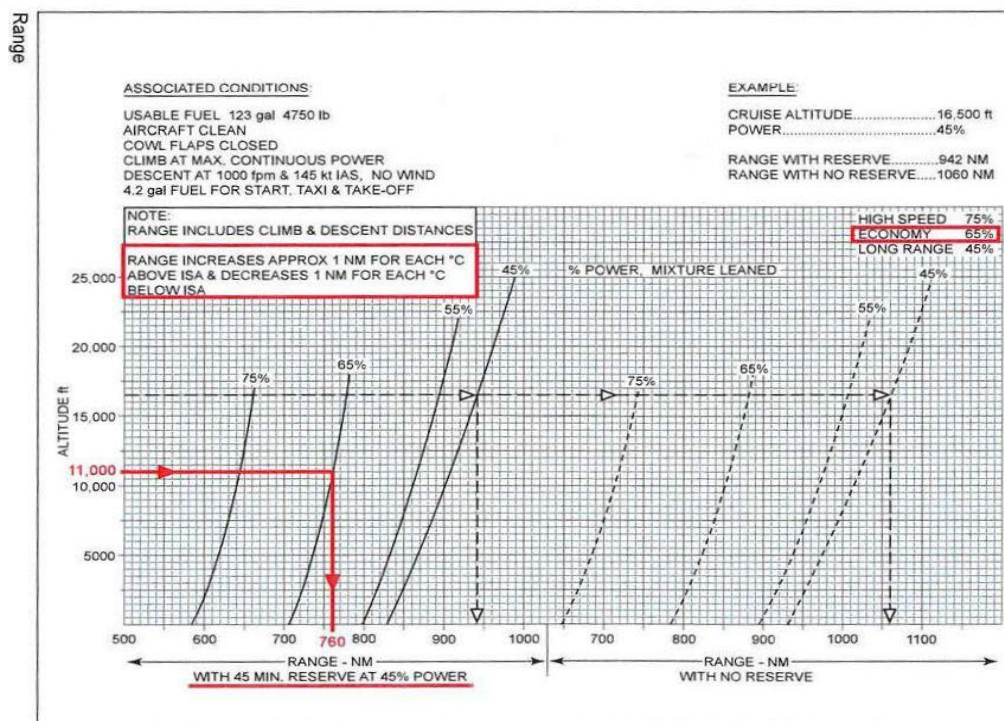


Figure P-15

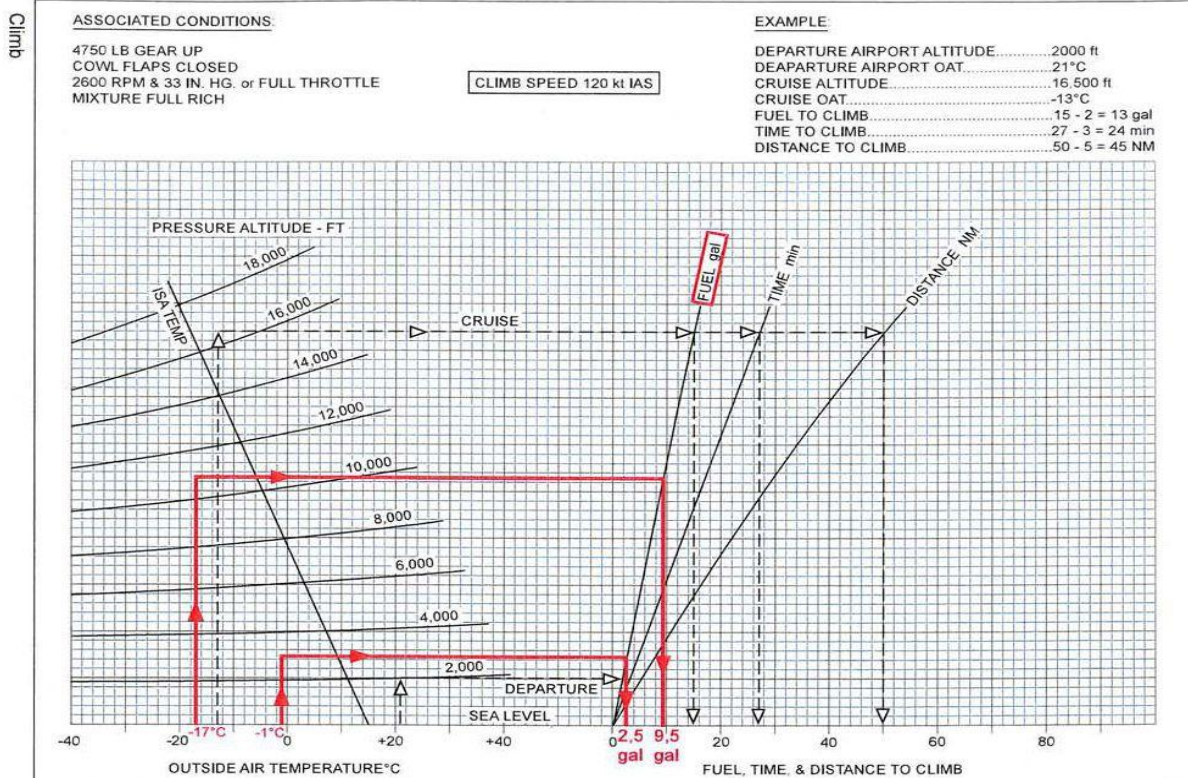


Figure P-16

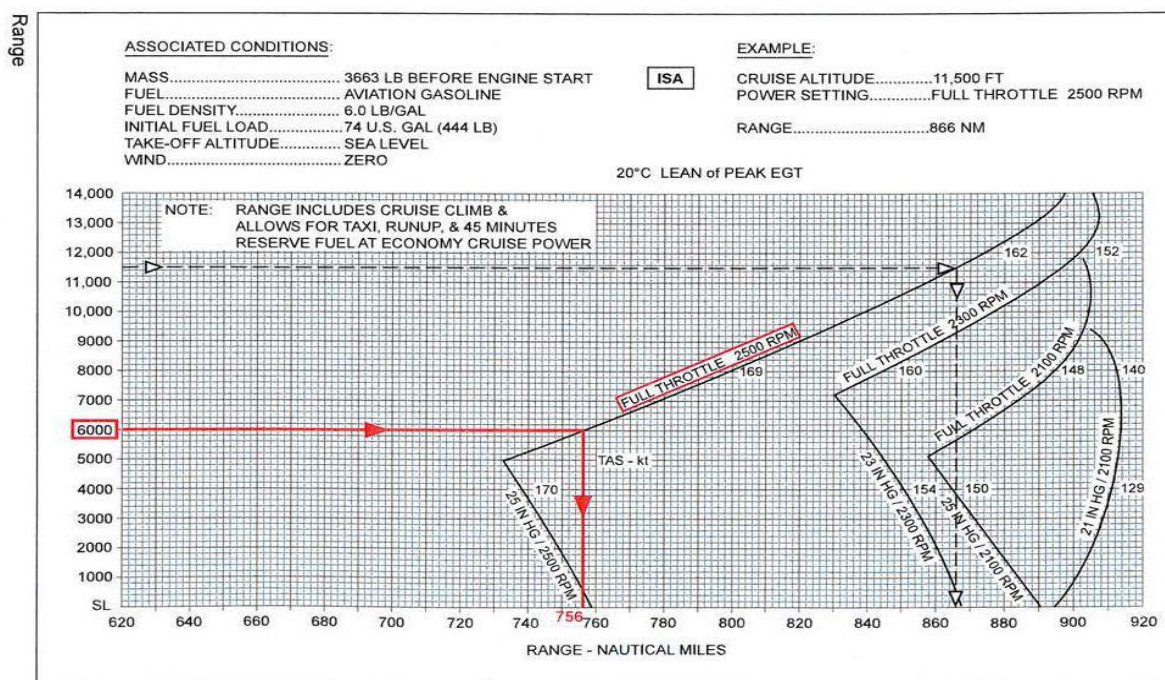


Figure P-17

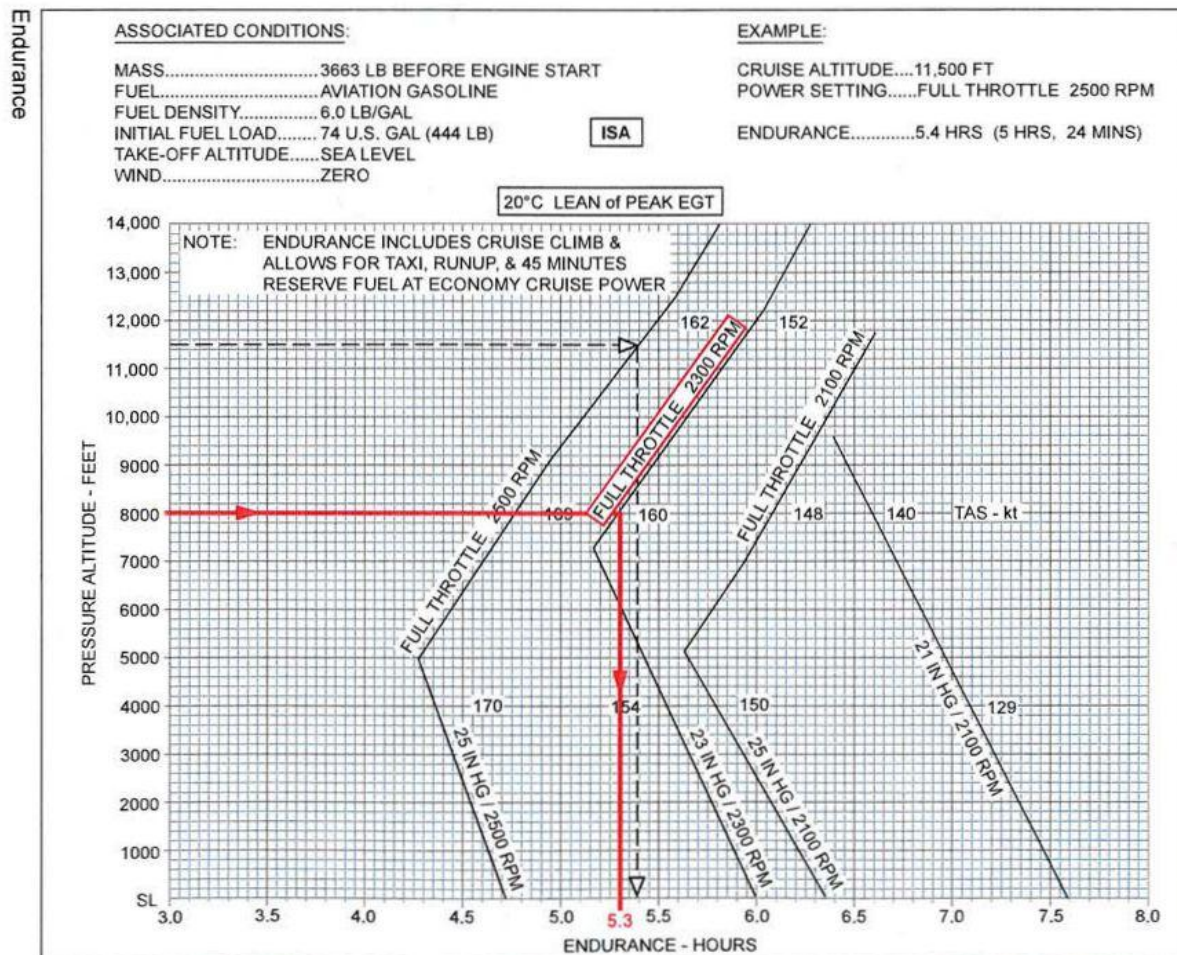


Figure P-18

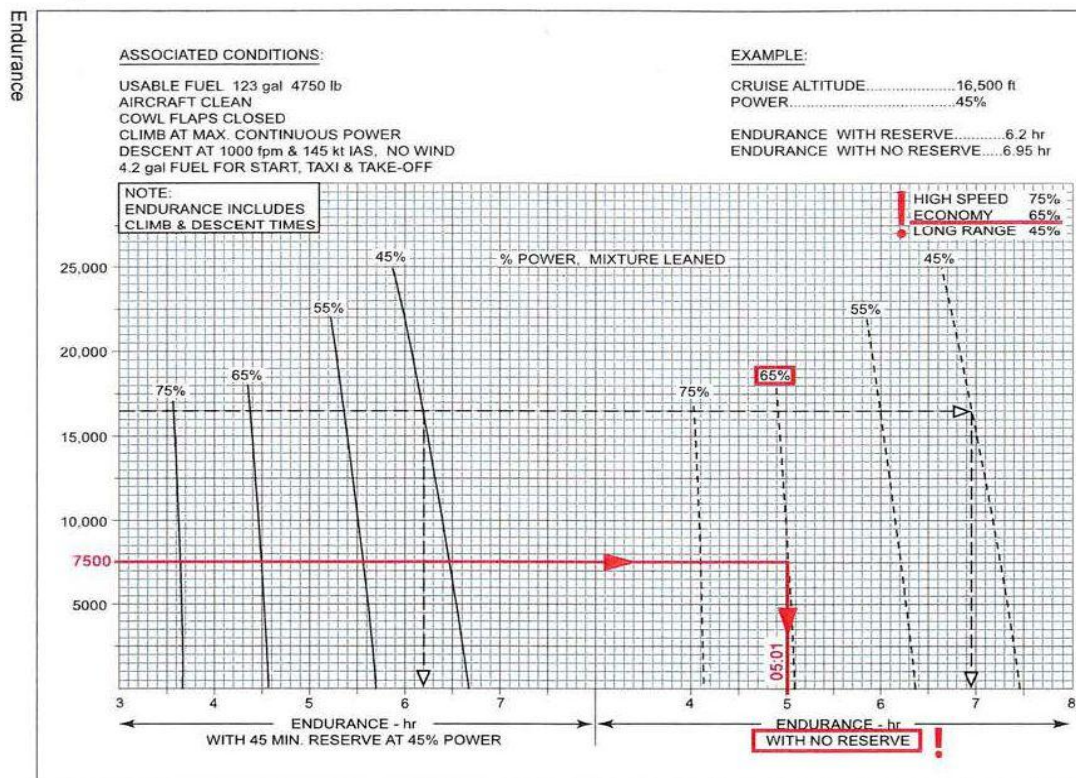


Figure P-19

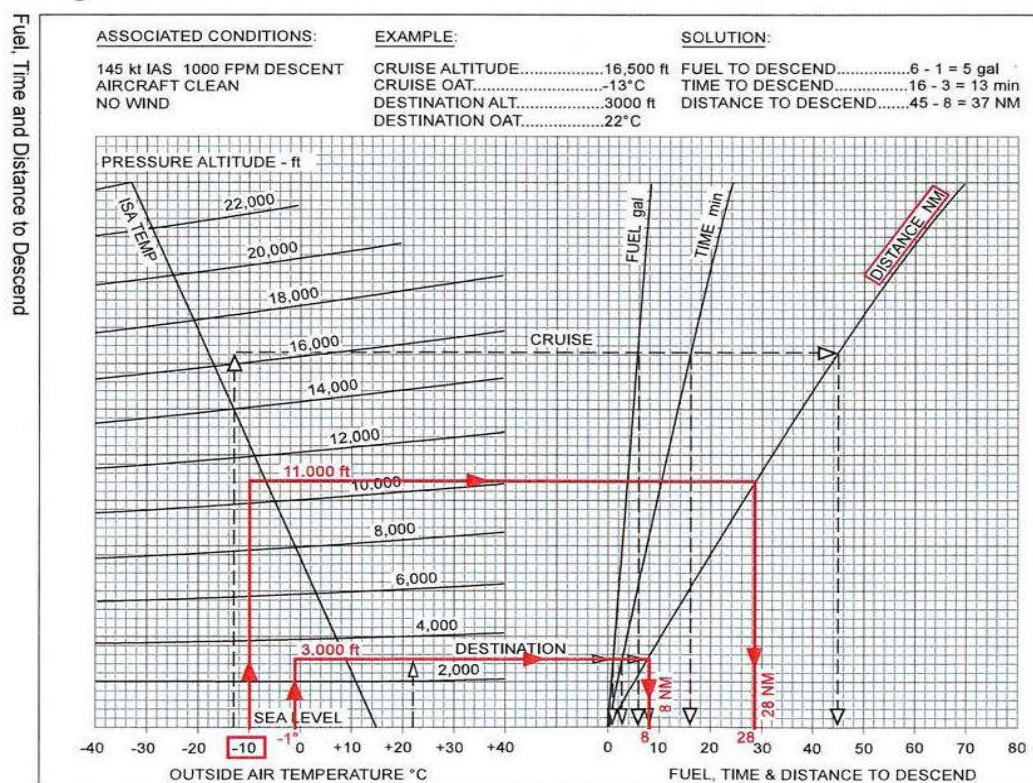


Figure P-20

Speed v Power

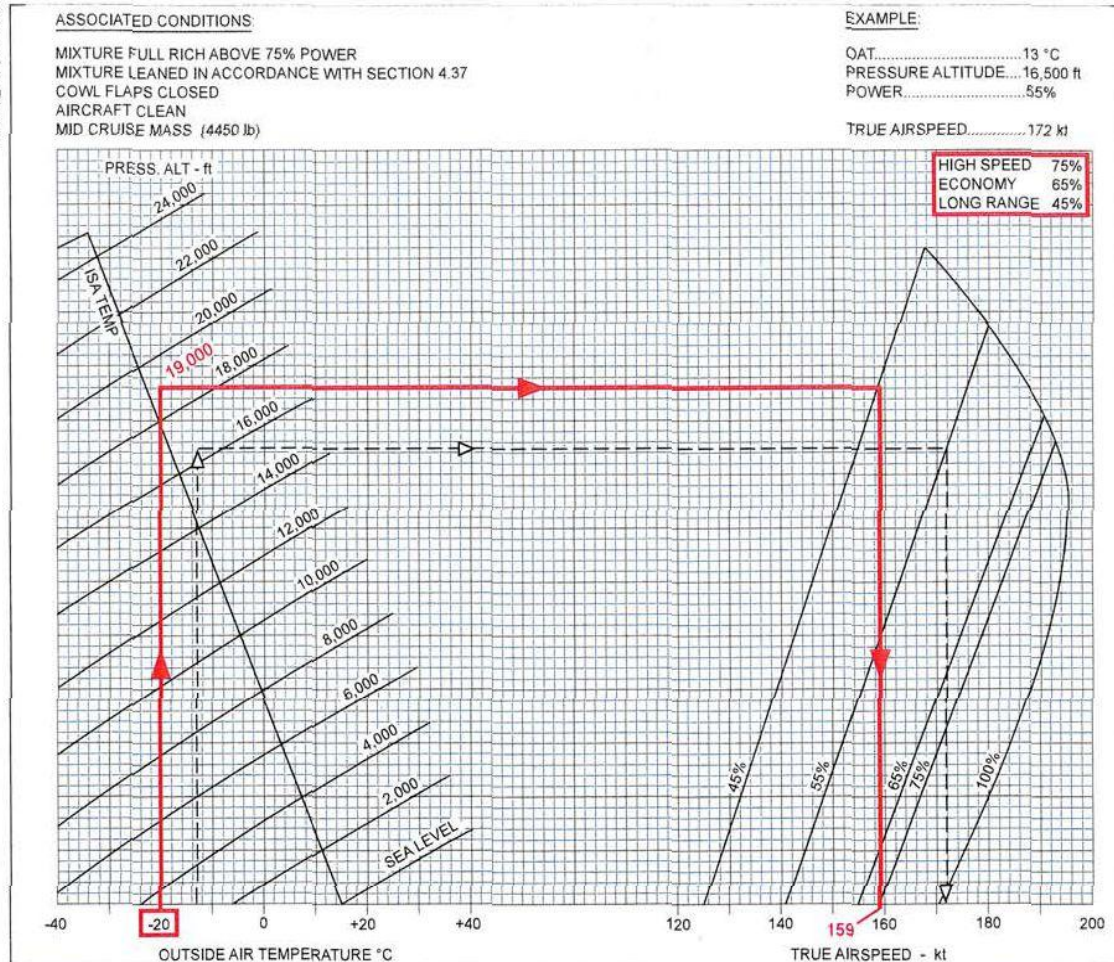


Figure P-21

Table 2.2.3 23.0 in. Hg (or full throttle) @ 2,300 rpm
Off-peak EGT Cruise lean mixture @ cruise weight 3,400 lb

ISA Dev.	Press. Alt.	IOAT		Man. Press.	Fuel Flow		Airspeed	
		°C	°F		PPH	GPH	KIAS	KTAS
-20	0	-3	26	23.0	67.6	11.3	152	144
	2,000	-7	20	23.0	69.7	11.6	152	149
	4,000	-11	13	23.0	72.1	12.0	153	154
	6,000	-15	6	23.0	74.4	12.4	153	158
	8,000	-18	-1	22.4	73.8	12.3	150	160
	10,000	-23	-9	20.7	68.4	11.4	143	157
	12,000	-27	-16	19.2	63.8	10.6	135	153
	14,000	-31	-23	17.8	60.0	10.0	127	148
	16,000	-35	-31	16.4	56.3	9.4	117	141
0	0	17	62	23.0	65.4	10.9	147	145
	2,000	13	56	23.0	67.4	11.2	147	149
	4,000	9	49	23.0	69.4	11.6	148	154
	6,000	5	42	23.0	71.7	12.0	148	159
	8,000	2	35	22.4	71.1	11.9	145	160
	10,000	-3	27	20.7	66.2	11.0	137	157
	12,000	-7	20	19.2	61.8	10.3	129	152
	14,000	-11	13	17.8	58.5	9.8	120	146
	16,000	-15	5	16.4	55.3	9.2	109	137
+20	0	37	98	23.0	63.2	10.5	142	145
	2,000	33	92	23.0	65.1	10.9	143	149
	4,000	29	85	23.0	67.1	11.2	143	154
	6,000	25	78	23.0	69.0	11.5	142	158
	8,000	22	71	22.4	68.5	11.4	140	160
	10,000	17	63	20.7	64.0	10.7	132	156
	12,000	13	56	19.2	60.0	10.0	123	151
	14,000	9	48	17.8	57.1	9.5	113	142
	16,000	-	-	-	-	-	-	-

Recommended Cruise Power Settings (continued)

NOTE 1: Full-throttle manifold pressure settings are approximate.

NOTE 2: Shaded areas represent operation with full throttle.

NOTE 3: Fuel flows are to be used for flight planning. Lean using the EGT.

ISA + 10°C
7500 ft
11.7 GPH
159.62 KTAS

Figure P-22

Table 2.2.3 **23.0 in. Hg (or full throttle) @ 2,300 rpm**
Off-peak EGT Cruise lean mixture @ cruise weight 3,400 lb

ISA Dev.	Press. Alt.	IOAT		Man. Press.	Fuel Flow		Airspeed	
		°C	°F		PPH	GPH	KIAS	KTAS
-20	0	-3	26	23.0	67.6	11.3	152	144
	2,000	-7	20	23.0	69.7	11.6	152	149
	4,000	-11	13	23.0	72.1	12.0	153	154
	6,000	-15	6	23.0	74.4	12.4	153	158
	8,000	-18	-1	22.4	73.8	12.3	150	160
	10,000	-23	-9	20.7	68.4	11.4	143	157
	12,000	-27	-16	19.2	63.8	10.6	135	153
	14,000	-31	-23	17.8	60.0	10.0	127	148
0	16,000	-35	-31	16.4	56.3	9.4	117	141
	0	17	62	23.0	65.4	10.9	147	145
	2,000	13	56	23.0	67.4	11.2	147	149
	4,000	9	49	23.0	69.4	11.6	148	154
	6,000	5	42	23.0	71.7	12.0	148	159
	8,000	2	35	22.4	71.1	11.9	145	160
	10,000	-3	27	20.7	66.2	11.0	137	157
	12,000	-7	20	19.2	61.8	10.3	129	152
+20	14,000	-11	13	17.8	58.5	9.8	120	146
	16,000	-15	5	16.4	55.3	9.2	109	137
	0	37	98	23.0	63.2	10.5	142	145
	2,000	33	92	23.0	65.1	10.9	143	149
	4,000	29	85	23.0	67.1	11.2	143	154
	6,000	25	78	23.0	69.0	11.5	142	158
	8,000	22	71	22.4	68.5	11.4	140	160
	10,000	17	63	20.7	64.0	10.7	132	156
	12,000	13	56	19.2	60.0	10.0	123	151
	14,000	9	48	17.8	57.1	9.5	113	142
	16,000	-	-	-	-	-	-	-

Recommended Cruise Power Settings (continued)

NOTE 1: Full-throttle manifold pressure settings are approximate.

NOTE 2: Shaded areas represent operation with full throttle.

NOTE 3: Fuel flows are to be used for flight planning. Lean using the EGT.

Figure P-23

Table 2.2.2 **25.0 in. Hg (or full throttle) @ 2,100 rpm**
Off-peak EGT Cruise lean mixture @ cruise weight 3,400 lb

ISA Dev.	Press. Alt.	IOAT		Man. Press.	Fuel Flow		Airspeed	
		°C	°F		PPH	GPH	KIAS	KTAS
-20	0	-3	26	25.0	63.8	10.6	148	140
	2,000	-7	19	25.0	66.4	11.1	149	145
	4,000	-11	12	25.0	68.9	11.5	149	150
	6,000	-15	5	24.3	68.3	11.4	147	152
	8,000	-19	-2	22.5	63.9	10.7	139	148
	10,000	-23	-9	20.8	60.1	10.0	132	144
	12,000	-27	-17	19.3	56.7	9.5	123	139
	14,000	-31	-24	17.9	54.5	9.1	113	132
0	16,000	-35	-32	16.5	52.2	8.7	95	114
	0	17	62	25.0	61.9	10.3	143	140
	2,000	13	55	25.0	64.2	10.7	143	145
	4,000	9	48	25.0	66.6	11.1	144	150
	6,000	5	41	24.3	66.1	11.0	141	152
	8,000	1	34	22.5	61.9	10.9	134	148
	10,000	-3	27	20.8	58.5	9.8	126	143
	12,000	-7	19	19.3	55.6	9.3	116	136
+20	14,000	-11	12	17.9	53.5	8.9	103	125
	16,000	-	-	-	-	-	-	-
	0	37	98	25.0	60.1	10.0	138	140
	2,000	33	91	25.0	62.1	10.4	138	145
	4,000	29	84	25.0	64.4	10.7	139	150
	6,000	25	77	24.3	63.9	10.7	136	151
	8,000	21	70	22.5	60.2	10.0	128	147
	10,000	17	63	20.8	56.8	9.5	119	141
	12,000	13	55	19.3	54.5	9.1	108	131
	14,000	-	-	-	-	-	-	-
	16,000	-	-	-	-	-	-	-

Recommended Cruise Power Settings (continued)

NOTE 1: Full-throttle manifold pressure settings are approximate.

NOTE 2: Shaded areas represent operation with full throttle.

NOTE 3: Fuel flows are to be used for flight planning. Lean using the EGT.

Figure P-24

	TAS *)	Fuel flow *)	Ground speed (kts)	Time (hrs)	Fuel used (l)
FL50	192	208	162	2,72	565
FL100	201	192	151	2,91	558
FL180	216	163	146	3,02	492

*) Figure must be interpolated from table.

GS = TAS - wind

Time = 440 NM / GS

Fuel = Time * Fuel flow

From table it is evident, that FL180 will offer the lowest fuel economy => best range performance.

Figure P-25

Endurance / Fuel Calculation

	Fuel (kg)	Time (hh:mm)
Trip Fuel	5.800	02:32
Contingency Fuel	290	00:07
Alternate Fuel	1.800	00:42
Final Reserve Fuel	1.325	00:30
Minimum T/O Fuel	9.215	
Extra Fuel	585	00:15
Actual T/O Fuel	9.800	
Taxi Fuel	200	
Ramp Fuel	10.000	

Figure P-26

POWER	75%		65%				55%						45%					
FUEL FLOW	29.0 GPH		23.3 GPH				18.7 GPH						16.0 GPH					
RPM	2,500	2,600	2,400	2,500	2,600	2,100	2,200	2,300	2,400	2,500	2,600	2,100	2,200	2,300	2,400	2,500	2,600	
PRESS ALT (ft)	ISA	MANIFOLD ABSOLUTE PRESSURE (Hg in) (MAP)																
0	15	34.0	33.0	33.8	32.0	31.0	31.2	30.3	29.4	28.2	27.2	26.3	27.1	26.4	25.5	24.3	23.3	22.5
2,000	11	33.8	32.7	33.2	31.7	30.7	30.5	29.7	28.8	27.8	26.8	26.0	26.4	25.8	24.6	23.7	22.8	22.1
4,000	7	33.6	32.4	32.8	31.5	30.5	30.0	29.2	28.3	27.4	26.4	25.6	25.8	25.0	24.0	23.2	22.3	21.8
6,000	3	33.4	32.2	32.5	31.2	30.3	29.7	28.8	28.0	27.0	26.2	25.3	25.3	24.5	23.5	22.8	21.9	21.5
8,000	-1	33.1	32.0	32.3	31.0	30.1	29.4	28.4	27.7	26.8	25.7	25.0	24.8	24.0	23.0	22.4	21.6	21.2
10,000	-5	33.0	31.9	32.0	30.9	30.0	-	28.3	27.5	26.5	25.5	24.7	24.4	23.7	22.8	22.0	21.4	21.0
12,000	-9	32.5	31.8	31.8	30.7	29.8	-	28.3	27.2	26.3	25.3	24.6	24.0	23.3	22.5	21.7	21.2	20.9
14,000	-13	-	31.7	-	30.5	29.7	-	-	27.1	26.1	25.2	24.4	-	23.0	22.3	21.4	21.1	20.8
16,000	-17	-	31.6	-	30.4	29.5	-	-	-	25.9	25.0	24.3	-	-	22.0	21.3	21.0	20.6
18,000	-21	-	-	-	-	29.4	-	-	-	-	25.0	24.2	-	-	-	21.2	20.9	20.5
20,000	-25	-	-	-	-	29.3	-	-	-	-	-	24.2	-	-	-	21.2	20.8	20.4
22,000	-28	-	-	-	-	-	-	-	-	-	-	24.1	-	-	-	-	-	20.4
MAX EGT		1,525°F				1,650°F												
24,000	-33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.4
25,000	-34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.4

Power Setting Table

Figure P-27

Mass definitions	Airframe + Engines	Equipment (all roles)	Unusable fuel + Oil + Hydraulic fluid	Crew + Catering	Payload	Fuel
Basic empty mass (BEM)	Yes	Yes	Yes			
Dry operation mass (DOM)	Yes	Yes	Yes	Yes		
Zero fuel mass (ZMF)	Yes	Yes	Yes	Yes	Yes	
Ramp mass (RM)	Yes	Yes	Yes	Yes	Yes	Yes (Fuel Load)
Take off mass (TOM)	Yes	Yes	Yes	Yes	Yes	Yes (Toff fuel)
Operating mass (OM)	Yes	Yes	Yes	Yes	Yes	Yes (Toff fuel)
Gross mass (GM)	Yes	Yes	Yes	Yes	Yes	Yes (Fuel remaining)
Landing mass (LM)	Yes	Yes	Yes	Yes	Yes	Yes

Figure P-28

Table 2.2.3

Off-peak EGT

23.0 in. Hg (or full throttle) @ 2,300 rpm

Cruise lean mixture @ cruise weight 3,400 lb

STANDARD DAY =
= 0° ISA DEVIATION

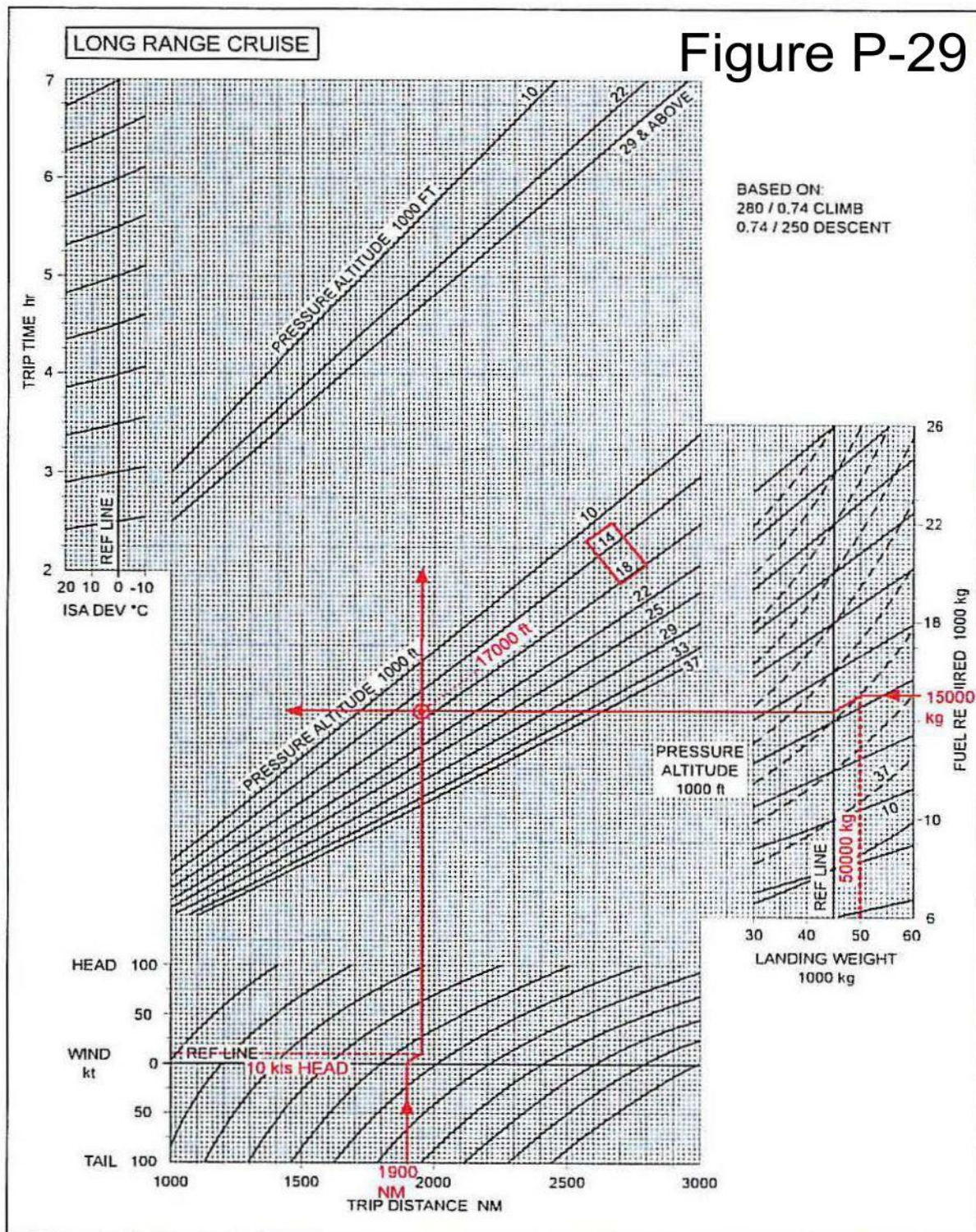
ISA Dev.	Press. Alt.	IOAT		Man. Press.	Fuel Flow		Airspeed	
		°C	°F		PPH	GPH	KIAS	KTAS
-20	0	-3	26	23.0	67.6	11.3	152	144
	2,000	-7	20	23.0	69.7	11.6	152	149
	4,000	-11	13	23.0	72.1	12.0	153	154
	6,000	-15	6	23.0	74.4	12.4	153	158
	8,000	-18	-1	22.4	73.8	12.3	150	160
	10,000	-23	-9	20.7	68.4	11.4	143	157
	12,000	-27	-16	19.2	63.8	10.6	135	153
	14,000	-31	-23	17.8	60.0	10.0	127	148
	16,000	-35	-31	16.4	56.3	9.4	117	141
0	0	17	62	23.0	65.4	10.9	147	145
	2,000	13	56	23.0	67.4	11.2	147	149
	4,000	9	49	23.0	69.4	11.6	148	154
	6,000	5	42	23.0	71.7	12.0	148	159
	8,000	2	35	22.4	71.1	11.9	145	160
	10,000	-3	27	20.7	66.2	11.0	137	157
	12,000	-7	20	19.2	61.8	10.3	129	152
	14,000	-11	13	17.8	58.5	9.8	120	146
	16,000	-15	5	16.4	55.3	9.2	109	137
+20	0	37	98	23.0	63.2	10.5	142	145
	2,000	33	92	23.0	65.1	10.9	143	149
	4,000	29	85	23.0	67.1	11.2	143	154
	6,000	25	78	23.0	69.0	11.5	142	158
	8,000	22	71	22.4	68.5	11.4	140	160
	10,000	17	63	20.7	64.0	10.7	132	156
	12,000	13	56	19.2	60.0	10.0	123	151
	14,000	9	48	17.8	57.1	9.5	113	142
	16,000	-	-	-	-	-	-	-

Recommended Cruise Power Settings (continued)

NOTE 1: Full-throttle manifold pressure settings are approximate.

NOTE 2: Shaded areas represent operation with full throttle.

NOTE 3: Fuel flows are to be used for flight planning. Lean using the EGT.



Simplified Flight Planning – Trip Distances 1,000 NM to 3,000 NM

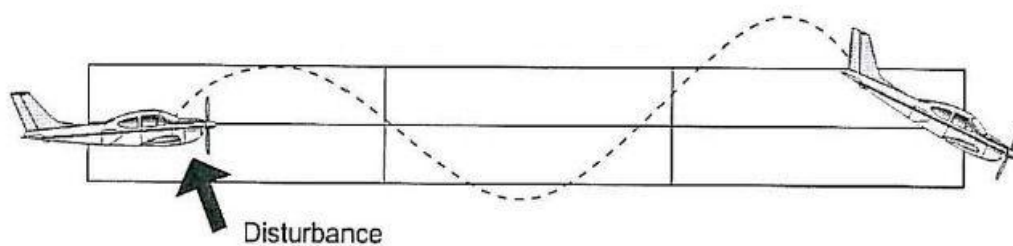


Figure P-30

Figure P-31

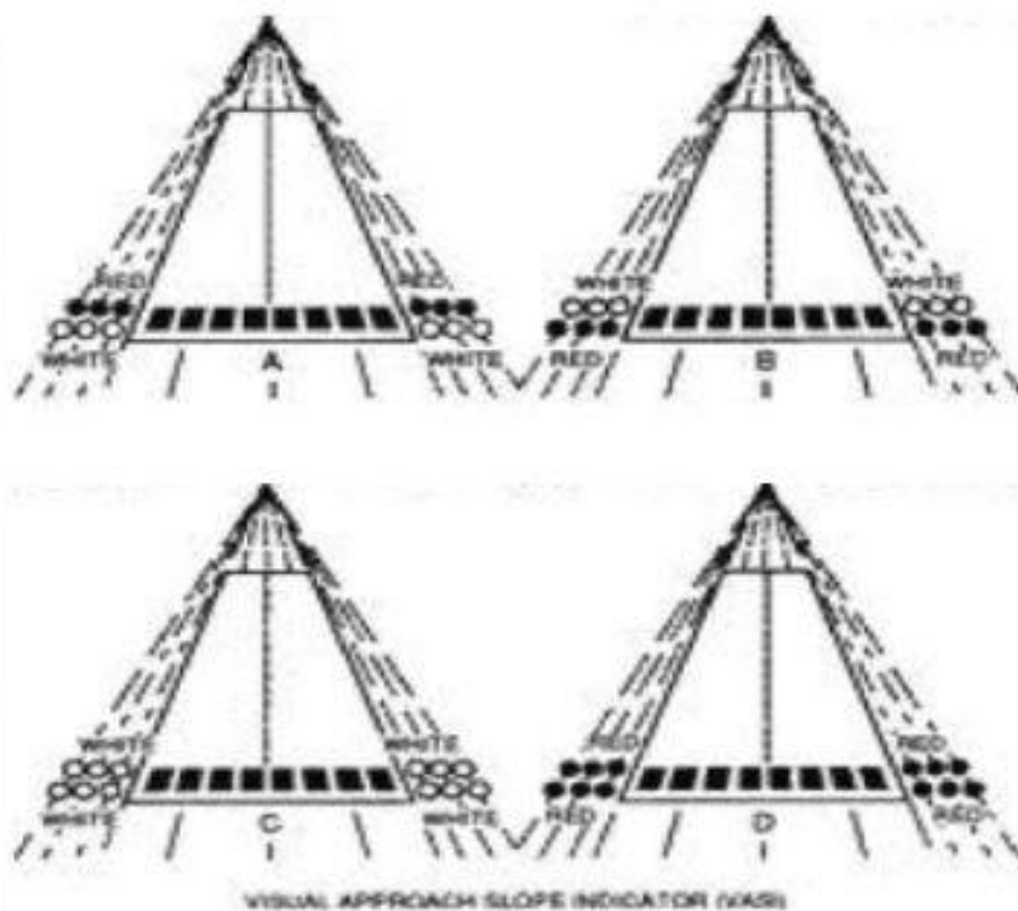


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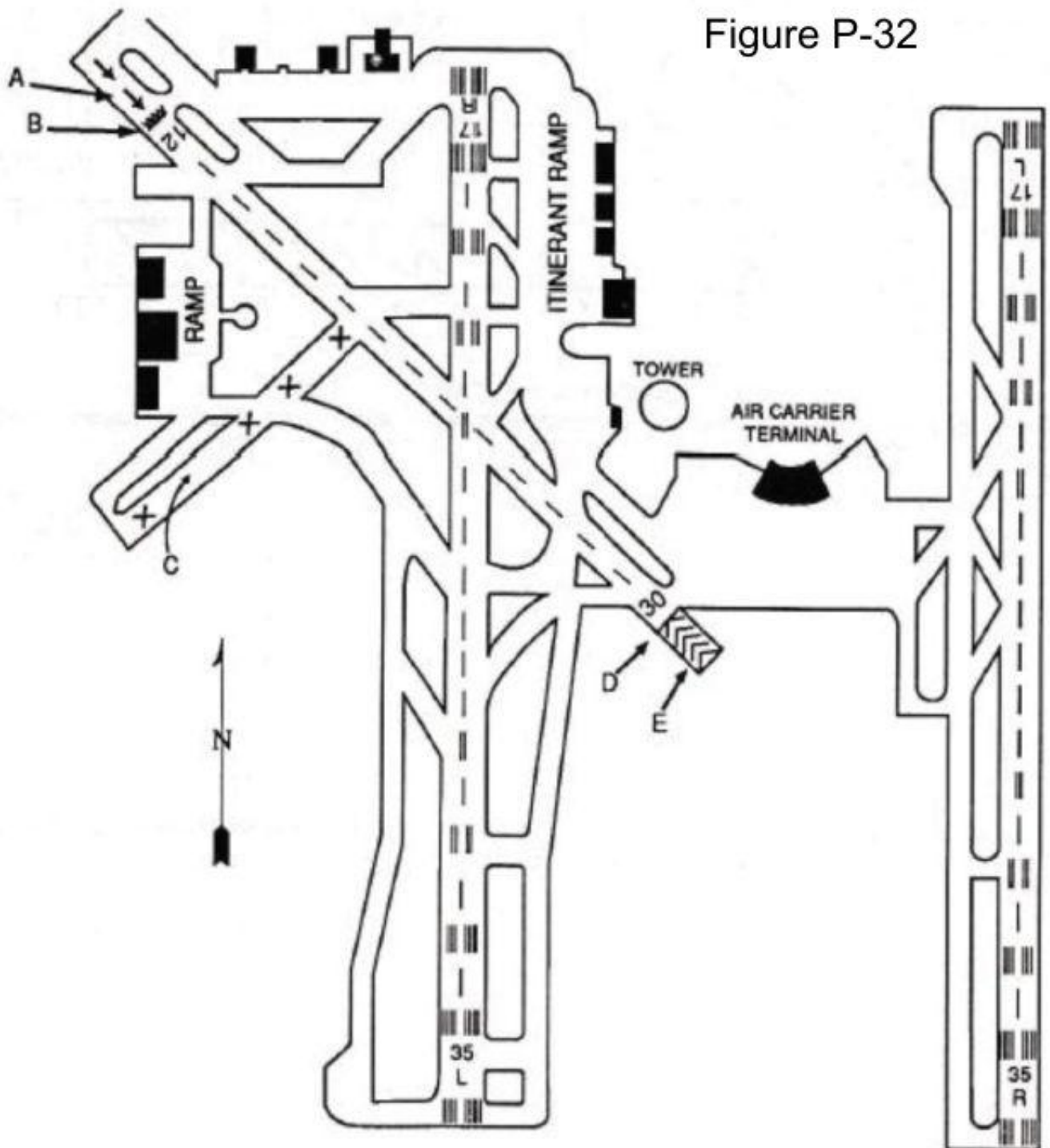


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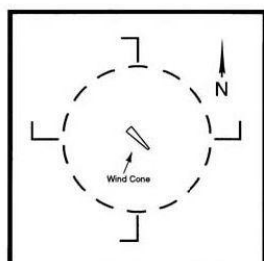
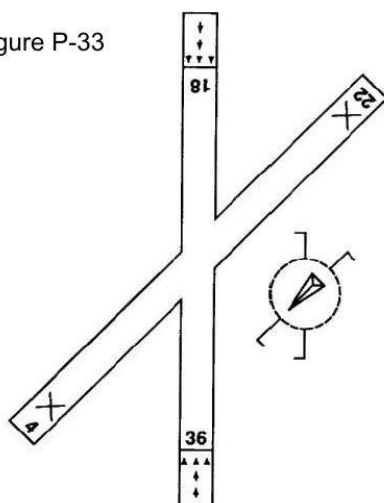
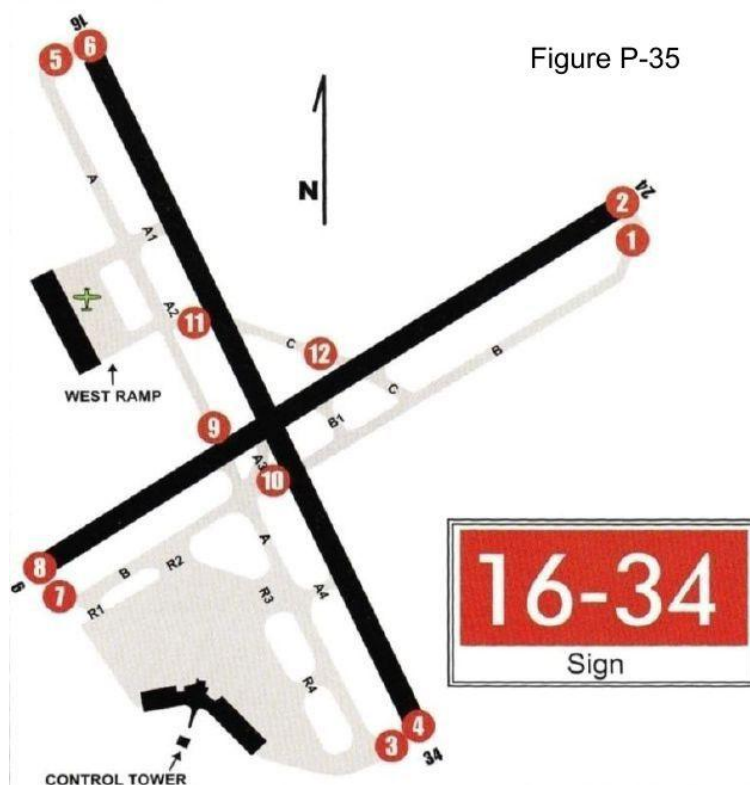


Figure P-34

Figure P-35



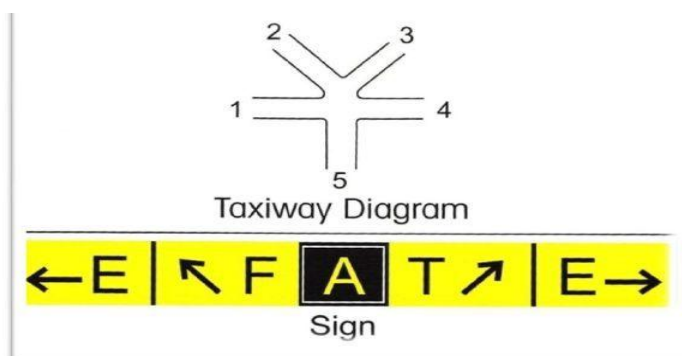


Figure P-36



Figure P-37



Figure P-38

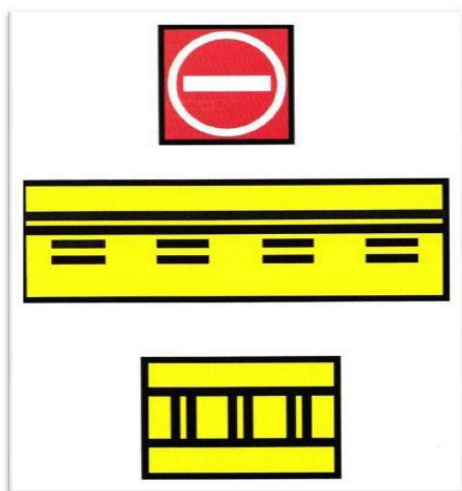


Figure P-39

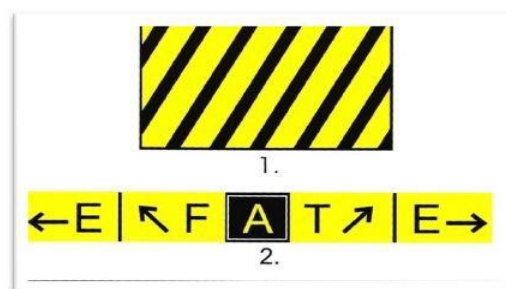


Figure P-40

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