PRACTICE BAK QUESTIONS

Note: Actual exam has only 50 questions multiple choice and a time frame of 3hrs

1. The lift produced by a wing is defined as:
   (A) the force produced perpendicular to the longitudinal axis.
   (B) the force produced perpendicular to the chord of the wing.
   (C) the force produced perpendicular to the relative airflow.
   (D) the force produced parallel to the relative airflow.

2. Lift is said to act through the:
   (A) centre of gravity
   (B) centre of pressure
   (C) centre of the wing
   (D) centre of the chord line

3. From the Lift formula ($L = C_L 0.5 \quad V^2 S$), the two ways open to you as a pilot to increase lift are –
   (A) to increase density and speed
   (B) to decrease camber and increase speed
   (C) to decrease wing area and increase speed
   (D) to increase angle of attack and/or speed

4. Which of the following statements regarding the lift of an aerofoil is true?
   (A) Lift is aerodynamic force perpendicular to the relative airflow
   (B) Increasing the camber or thickness of a wing will increase the lift and drag
   (C) As airspeed is increased the angle of attack has to be reduced or the aircraft will climb
   (D) All of the above are true

5. In straight and level unaccelerated flight-
   (A) thrust equals drag, weight exceeds lift
   (B) thrust is greater than drag, lift is greater than weight
   (C) thrust equals drag, lift equals weight
   (D) thrust exceed drag, lift equals weight

6. If cruising in unaccelerated straight and level flight, with all other factors remaining constant. As the angle of attack is increased, lift will –
   (A) increase until the stalling angle is reached
   (B) increase until the maximum lift/drag angle is reached, then decrease
   (C) decrease because drag will increase
   (D) increase until zero angle of attack is reached

7. To maintain altitude, what control changes must be made when airspeed is decreased?
   (A) A stable aircraft will maintain altitude regardless of airspeed
   (B) The angle of attack must be increased to increase lift
   (C) The angle of attack must be increased to produce more lift than weight
   (D) The angle of attack must be decreased

8. The most efficient angle of attack occurs at –
   (A) the angle of attack giving the best lift coefficient
   (B) the angle of attack giving the best lift/drag ratio
   (C) the angle of attack giving least coefficient of lift
   (D) at the critical angle of attack

9. The term relative airflow is said to be –
   - (A) parallel to the flight path, opposite to the direction of flight
   - (B) created by the aircraft moving through the air
   - (C) perpendicular to lift
   - (D) All of the above

10. The angle of attack can be described as the angle between the –
    - (A) chord line and the relative airflow
    - (B) leading edge and the lateral axis
    - (C) relative airflow and the lateral axis
    - (D) chord line and the longitudinal axis

11. The chord line is said to be –
    - (A) the straight line joining the nose and the tail
    - (B) the straight line joining the wingtip and the wing root
    - (C) the straight line joining the leading edge and the trailing edge
    - (D) the line following the curvature of the upper surface of the wing

12. Weight is said to act through the –
    - (A) centre of pressure, towards the earth
    - (B) centre of gravity, towards the earth
    - (C) centre of pressure, perpendicular to the relative airflow
    - (D) centre of gravity, perpendicular to the relative airflow

13. An increase in the weight of an aircraft will affect take-off performance by –
    - (A) reducing the take-off distance required
    - (B) increasing the power required to take-off
    - (C) increasing the take-off distance required
    - (D) increasing the aft centre of gravity (CoG)

14. An increase in the apparent weight of an aircraft during manoeuvres, that we know as “G” forces, is called –
    - (A) the artificial weight
    - (B) the wing loading
    - (C) the load factor
    - (D) the centrifugal force

15. Drag is said to act –
    - (A) rearward, parallel to the longitudinal axis
    - (B) rearward, perpendicular to the flight path
    - (C) rearward, perpendicular to the relative airflow
    - (D) rearward, parallel to the flight path

16. Total drag is the sum of profile drag and induced drag. Induced drag is greatest at –
    - (A) high speed and created by aircraft shape
    - (B) high speed and large angles of attack
    - (C) low speed and created by the aircraft shape
    - (D) low speed and large angles of attack

17. Induced drag is caused by –
    - (A) airflow over the wheels and the other non-lifting surfaces
    - (B) the creation of lift of an aerofoil
    - (C) the air being drawn in to cool the engine
    - (D) friction of the air flowing over the aerofoil

18. Increase the angle of attack from the best lift/drag ratio angle of attack to the stalling (critical) angle, will cause-
(A) increased lift and drag
(B) increased lift and decreased drag
(C) decreased lift and drag
(D) increased lift and drag remains constant

19. From the slowest possible straight and level speed to the fastest possible speed, total drag will:-
(A) remain constant
(B) increase continuously
(C) decrease, then increase
(D) increase, then decrease

20. Profile drag is said to be:-
(A) a total of shape, friction, interference and parasite drag
(B) the sum of total drag and induced drag
(C) created by the shape of the aircraft
(D) created by wake turbulence

21. In straight and level unaccelerated flight, minimum thrust is required at:-
(A) the lowest possible speed
(B) the speed where total drag is least
(C) the speed where parasite drag is least
(D) the speed where induced drag is least

22. At low airspeeds total drag:-
(A) is the same as at all other speeds
(B) is less than at any higher speeds
(C) increases due to increased parasite drag
(D) increases due to increased induced drag

23. In a steady climb:-
(A) lift equals weight, thrust equals drag
(B) lift exceeds weight, thrust exceeds drag
(C) lift is less than weight, thrust exceeds drag
(D) lift is less than weight, thrust is less than drag

24. There are three climbing speeds most often used. Best angle of climb (AoC), best rate of climb (RoC) and cruise climb. Why would you use cruise climb instead of one of the others?

(A) To climb more quickly
(B) For better engine cooling and visibility
(C) So loose objects aren't displaced
(D) To climb more steeply

25. When climbing into wind as opposed to downwind –
(A) the angle and rate of climb both increases
(B) the angle of climb increases and the rate of climb decreases
(C) the angle and rate of climb both decrease
(D) the angle of climb increases and the rate of climb remains constant

26. While climbing at the best Rate of Climb speed –
(A) the greatest height will be gained in the shortest time
(B) the greatest height will be gained in the shortest distance
(C) more fuel will be consumed than other speeds
(D) the angle of climb will be greater than the best AoC speed

27. While in a steady climb you reduce the airspeed to the stalling speed. The angle of climb will-
   (A) Increase continuously
   (B) Decrease continuously
   (C) Decrease, then increase
   (D) Increase, then decrease

28. The maximum angle of climb speed is usually –
   (A) faster than the best RoC speed
   (B) better for engine cooling
   (C) better for aircraft controllability
   (D) slower than the best RoC speed

29. The best Rate of Climb (RoC) speed is the speed where there is –
   (A) maximum power available
   (B) least power required
   (C) maximum excess power
   (D) best headwind component

30. Which airspeed is the best to fly at to clear obstacles after take-off?
   (A) Best rate of climb speed
   (B) Best angle of climb speed
   (C) Cruise climb speed
   (D) Minimum control speed

31. In a descent –
   (A) lift equals weight, thrust equals drag
   (B) lift and weight equals thrust and drag
   (C) lift and drag equals weight and thrust
   (D) lift and thrust equals weight and drag

32. The maximum gliding distance for an aeroplane is achieved when it is flown at a speed for the -
   (A) best drag/lift ratio
   (B) best lift/drag ratio
   (C) minimum lift/drag ratio
   (D) slowest speed possible

33. The maximum gliding distance in an engine failure situation would be achieved by using –
   (A) any speed in the green arc
   (B) the speed just above the stalling speed
   (C) the maximum structural cruising speed
   (D) maximum lift/drag ratio speed, considering weight

34. In a descent, to flatten the glide path angle ie to reduce the rate of descent, the pilot could –
   (A) raise the nose of the aircraft
   (B) decrease power
   (C) lower more flap
   (D) add more power

35. At a constant indicated airspeed the rate of descent could be increased by –
   (A) lowering flap
   (B) lowering the nose attitude
   (C) raising the nose attitude
   (D) adding more power

36. In a glide the effect of a headwind on glide performance is –
(A) to reduce range but not indicated airspeed
(B) to reduce range and IAS is increased
(C) that range is not affected if IAS is increased
(D) that range is not affected if IAS is decreased

37. The effect of an increase in the gross weight of an aircraft's "engine off" gliding performance is to –
(A) reduce the range
(B) increase the range
(C) range is not affected
(D) rate of descent is reduced

38. In a balanced level turn, to maintain airspeed –
(A) thrust must be added to overcome the increased drag due to the increased angle of attack
(B) thrust must be added to turn the aircraft
(C) the angle of attack must be decreased
(D) no change is required by either angle of attack or airspeed

39. As the angle of bank is increased in a level turn, the –
(A) radius of turn becomes greater
(B) rate of turn reduces
(C) airspeed will increase automatically
(D) "G" forces will increase

40. In a climbing turn, most aeroplanes tend to –
(A) underbank
(B) overbank
(C) fly "right wing down"
(D) All of the above

41. Compared to straight and level flight, the load factor in a balanced turn –
(A) increases
(B) decreases
(C) remains the same
(D) remains zero

42. The stalling speed in a balanced level turn –
(A) is proportional to airspeed
(B) is proportional to velocity squared
(C) increases by the square root of the load factor
(D) decreases by the square root of the load factor

43. The angle between the leading edge spar and the lateral axis is called –
(A) dihedral
(B) longitudinal dihedral
(C) angle of incidence
(D) washout

44. The initial and further effects of applying rudder without moving any other controls is –
(A) pitch then roll and descend
(B) roll then yaw and descend
(C) roll then descend and yaw
(D) yaw then roll and descend

45. At low airspeeds and high power, as in a climb, -
(A) all controls are sloppy (less effective)
(B) the elevator and rudder remain effective, but the ailerons are sloppy
(C) the ailerons remain effective, but the elevator and rudder are sloppy
(D) all controls remain as effective as they would at higher speeds

46. The primary control in the pitching plane is provided by the –
(A) elevators
(B) rudder
(C) ailerons
(D) flaps

47. The primary control in the yawing plane is provided by the –
(A) elevators
(B) rudder
(C) ailerons
(D) flaps

48. The primary control in the rolling plane is provided by the –
(A) elevators
(B) rudder
(C) ailerons
(D) flaps

49. If a change is made in the pitch attitude to an aircraft in flight, the aircraft will rotate about it's –
(A) lateral axis
(B) longitudinal axis
(C) vertical or normal axis
(D) centre of pressure

50. An aeroplane has dihedral built into it for the purpose of –
(A) improving lateral stability
(B) improving longitudinal stability
(C) improving directional stability
(D) aiding washout

51. The load factor –
(A) the actual load supported by the wings
(B) the ratio of the load supported by the wings compared to the actual weight of the aircraft
(C) unaltered once the aircraft is loaded
(D) proportional to the velocity squared

52. Compared to straight and level flight, when the aircraft is banked, the load factor –
(A) decreases
(B) remains constant
(C) increases to one
(D) increases

53. In a 60^{o} angle of bank, level turn, the load factor is –
(A) -1
(B) 0
(C) 1.4
(D) 2

54. Stalling speed is increased by an increase in –
(A) gross weight
(B) angle of attack
(C) air density
(D) altitude

55. The angle of attack at which an aerofoil stalls –
(A) depends on the airspeed over the wings
(B) remains constant regardless of gross weight and angle of bank
(C) is a function of altitude
(D) is greater when flying into wind compared to downwind

56. In a level, steep turn, an aeroplane will stall at a higher airspeed than when in straight and level flight because –
(A) the stalling angle of attack is reached at a higher airspeed
(B) the wings produce less lift
(C) the drag is increased
(D) the load factor is reduced

57. An increase in gross weight or apparent weight ("G" forces) will increase the stalling speed of an aeroplane. The new stalling speed can be calculated by multiplying the straight and level stalling speed by the –
(A) load factor
(B) square root of the weight increase
(C) "G" force
(D) square root of the load factor

58. An aircraft has a straight and level stalling speed of 60kt. In a 60^o angle of bank the load factor is 2. What is the stalling speed in this configuration?
(A) 60kt
(B) 62kt
(C) 84kt
(D) 120kt

59. The advantage of differential ailerons as opposed to basic ailerons is that differential ailerons –
(A) increase controllability
(B) reduce adverse aileron drag
(C) produce greater lift
(D) improve static stability

60. When turning an aeroplane that is fitted with differential ailerons –
(A) the down going aileron is a greater angle that the up going aileron
(B) the down going aileron is a smaller angle than the up going aileron
(C) the angle of both ailerons is the same
(D) neither aileron moves

61. When trimming an aeroplane, the trim tab is operated to –

(A) increase lateral stability
(B) change the attitude of the aircraft
(C) give the aircraft smoother lines
(D) reduces the control column forces

62. Lowering flap will –
- (A) lower the straight and level stalling speed
- (B) increase the straight and level stalling speed
- (C) not affect the stalling speed
- (D) increase the weight of the aircraft

63. When full flap is used, the landing distance is reduced because –
- (A) the approach path is flatter
- (B) the total drag is reduced
- (C) the landing speed is lower
- (D) of increased visibility

64. One advantage of the use of flap is –
- (A) they increase take-off distance at long aerodromes
- (B) increased visibility
- (C) decreased power required for take-off
- (D) increased engine cooling

65. The use of flap in flight will give a lower nose attitude increasing visibility and increase –
- (A) weight
- (B) lift
- (C) drag
- (D) lift and drag

66. In a climb, the use of flap will –
- (A) increase the angle and rate of climb
- (B) decrease the angle and rate of climb
- (C) increase the angle of climb and decrease the rate of climb
- (D) decrease the angle and increase the rate of climb

67. When flying for maximum <u>range</u>, the speed to use is the IAS that will give –
- (A) the best lift/drag ratio
- (B) minimum power
- (C) maximum power
- (D) low and slow

68. When flying for maximum endurance, the speed to use is the IAS that will –
- (A) enable the aircraft to fly as high as possible
- (B) give minimum possible speed
- (C) give minimum power
- (D) give maximum possible speed

69. The affect of a headwind on maximum range is –
- (A) range will be increased and IAS will be increased
- (B) range will be increased but IAS is not affected
- (C) range will be decreased but IAS is not affected
- (D) range will not be affected but IAS is increased

70. The affect of a headwind on maximum endurance is –
- (A) Distance will be increased if IAS increased
- (B) Distance will be reduced if IAS is increased
- (C) Distance will be reduced but IAS is unaffected
- (D) Endurance has nothing to do with distance

71. Wake turbulence is induced drag and is greatest –
(A) when full power is applied
(B) in high speed flight
(C) at rotation and lift-off
(D) after lift-off

72. For flying in turbulence, full deflection of the control surfaces is required. The speed for flying in turbulence is noted in the Flight Manual as –
(A) Turbulence Penetration Speed
(B) Never Exceed Speed
(C) Normal Operating Speed
(D) Manoeuvring Speed

73. The speed range denoted on the airspeed indicator by a green arc is called –
(A) Turbulence Penetration Speed (Vb)
(B) Never Exceed Speed (Vne)
(C) Normal Operating Speed (Vno)
(D) Manoeuvring Speed (Va)

74. The four strokes of a four stroke piston engine cycle are –
(A) intake, compression, power and exhaust
(B) intake, exhaust, compression and power
(C) power, compression, intake and exhaust
(D) compression, power, intake and exhaust

75. In a four stroke piston engine, the ignition of the fuel/air mixture occurs during –
(A) the power or combustion stroke
(B) the exhaust stroke
(C) the compression stroke
(D) the intake or induction stroke

76. The device that is used to mix the fuel/air mixture prior to entering the combustion chamber is called –
(A) the fuel/air mixer
(B) the magneto
(C) the carburettor
(D) the distributor

77. Most aircraft engines use a mixture of approximately one part fuel to fifteen parts air. As the aircraft ascends, if the mixture is not adjusted, the mixture will become –
(A) too lean
(B) too rich
(C) too hot
(D) too dry

78. If a lower grade fuel was to be used instead of that recommended for the engine, the results could be –
(A) detonation
(B) pre-ignition
(C) plug fouling
(D) back firing

79. A chemically correct fuel/air ratio mixture should –
(A) start firing prior to ignition
(B) explode
(C) burn evenly after ignition
(D) explode after ignition

80. An unusually high cylinder head temperature could be caused by –
(A) low oil quantity, low RPM, too rich mixture
(B) high oil quality, open cowl flaps, too rich mixture
(C) high IAS, low RPM, too high altitude
(D) low IAS, high RPM, too lean mixture, low oil pressure

81. Detonation may be caused by –
(A) high cylinder head temperature
(B) low grade fuel
(C) too lean mixture
(D) all of the above

82. Which statement regarding fuel is correct?
(A) Using a higher grade than specified usually results in low cylinder head temperatures
(B) If correct grade is not available, the next highest may be used for a brief period only, because of exhaust valve corrosion.
(C) Using a lower grade than specified is permissible for short periods.
(D) Using a lower grade is preferable to using a higher grade because of increased power.

83. Engine cooling can be increased by –
(A) increasing power
(B) increasing angle of attack
(C) increasing airspeed
(D) leaning the mixture

84. Pre-ignition occurs in a reciprocating engine if –
(A) the fuel/air charge explodes after normal ignition
(B) the fuel/air charge is too rich
(C) the charge is too cold
(D) the charge is ignited by “hot spots” prior to normal ignition

85. The purpose of adjusting the fuel/air mixture as the aircraft ascends is to –
(A) increase the amount of fuel to increase power for cruising at higher altitudes
(B) decrease the amount of fuel to compensate for the lower density at higher altitudes
(C) decrease the amount of fuel to compensate for the higher density at high altitudes
(D) increase the amount of fuel to richen the mixture

86. The effect of operating the engine with a low oil quantity is likely to be –
(A) engine over cooling
(B) increased fuel consumption
(C) decreased oil consumption
(D) engine over heating

87. The effect of operating the engine with a low oil quantity is likely to be:
(A) engine cooling
(B) decreased oil consumption
(C) increased fuel consumption
(D) engine over heating

88. If in cruise flight, the oil temperature is reading higher than usual, your course of action would be –
(A) not to worry as this is normal in cruise flight
(B) to select an aerodrome within one hours flight to land
(C) to land as soon as practicable
(D) instigate a distress phase

89. The reason for duplicating the engine ignition system is –
(A) for safety
(B) to give more efficient combustion
(C) for safety and more efficient combustion
(D) to guard against engine failure

90. In cruise, the effect of one magneto failing would likely be –
(A) a small drop in RPM
(B) total engine failure
(C) a very rough running engine
(D) unnoticeable

91. The reason for installing an impulse coupling into the aircraft engine ignition system is to
(A) improve combustion efficiency
(B) increase power
(C) increase safety
(D) improve engine starting

92. The first indications of carburettor ice on a normally aspirated, fixed pitch propeller aircraft may be –
(A) a drop in oil temperature
(B) a drop in RPM
(C) a rise in oil temperature
(D) a rise in RPM

93. The first indications of carburettor ice when operating an engine fitted with a constant speed unit may be –
(A) a decrease in MP, and IAS
(B) an increase in MP, and IAS
(C) a decrease in MP, and an increase in IAS
(D) an increase in MP, and decrease in IAS

94. Carburettor ice can form in clear air. The most likely situation for carburettor ice to form are-
(A) high relative humidity and OAT
(B) low relative humidity and OAT
(C) high relative humidity and low OAT
(D) low relative humidity and high OAT

95. The formation of carburettor ice has the effect of –
(A) leaning the mixture
(B) richening the mixture
(C) increasing power
(D) increasing IAS

96. The most likely situation for the formation of carburettor ice would be –
(A) with idle power, on descent
(B) at high power, on climb
(C) at cruise power at high altitudes
(D) at cruise power at low altitudes

97. The most common ammeter in light aircraft is the centre zero ammeter. If this instrument, during flight shows a continuous discharge –
(A) the electrical load is greater than the alternator can provide
(B) the alternator has failed
(C) this is a normal indication
(D) the engine will stop

98. If a centre zero ammeter shows a constant discharge, it means that -
(A) the battery is fully charged
(B) the electrical load is greater than the output of the alternator
(C) there is a faulty circuit breaker
(D) engine RPM is too high

99. The principle advantage of an alternator as opposed to a generator, is that the alternator
(A) is lighter and produces a relatively constant voltage output, even at low engine RPM.
(B) Is heavier because of internal magnets
(C) Is lighter but produces a very erratic power output
(D) Is lighter and produces a relatively constant voltage output at high engine RPM only

100. The pitot tube protrudes into the remote airflow and registers –
(A) static air pressure
(B) dynamic air pressure
(C) total air pressure
(D) atmospheric pressure

101. The pressure instrument that the pitot tube supplies is –
(A) the artificial horizon
(B) the airspeed indicator
(C) the altimeter
(D) the vertical speed indicator

102. In flight, the difference between total air pressure and static air pressure is measured as –
(A) indicated airspeed
(B) feet per minute
(C) altitude
(D) atmospheric pressure

103. If the pitot tube became blocked at 8000’, on descent the ASI would –
(A) be unaffected
(B) read zero
(C) overread
(D) underread

104. If the static vent became blocked at 8000’, on descent the ASI would –
(A) be unaffected
(B) read zero
(C) overread
(D) underread

105. The altimeter is supplied only by –
(A) static air pressure
(B) dynamic air pressure
(C) total air pressure
(D) engine driven suction pump

106. If the pressure source to the altimeter became blocked while cruising at 8500’, on descent the altimeter would –
(A) read constantly 8500’
(B) read zero
(C) gradually return to zero
(D) read 8500’ then increase as the aeroplane descended.

107. If the static vent became blocked, the vertical speed indicator during a climb would –
- (A) register a rate of climb
- (B) read zero
- (C) overread
- (D) register a rate of descent

108. The static source supplies the –
- (A) AH, VSI, ASI, DG and Altimeter
- (B) VSI, ASI, DG and Altimeter
- (C) ASI only
- (D) ASI, VSI and Altimeter

109. The alternate static air source will produce instrument errors in the ASI and Altimeter because –
- (A) it comes directly from the engine
- (B) it comes from the engine driven suction pump
- (C) it comes from inside the aircraft cockpit
- (D) of electrical interference

110. The instrument that gives a direct reading of the angle of bank is the –
- (A) turn and slip indicator
- (B) artificial horizon
- (C) angle of bank meter
- (D) directional gyro

111. The artificial horizon gives a visual picture of the aircraft –
- (A) attitude
- (B) rate of turn
- (C) rate of climb
- (D) direction

112. The artificial horizon (AH) utilises –
- (A) the principle of electric impulse
- (B) the principle of high engine RPM
- (C) dynamic air pressure
- (D) the principle of the gyroscope

113. The directional gyro (DG) is manually aligned with the magnetic compass and, during the cruise, will probably require realigning after –
- (A) turbulent flight
- (B) turning through south
- (C) accelerating
- (D) cruising for 10 to 15mins

114. The advantage of using the DG in flight rather than the magnetic compass, is that the DG is –
- (A) less ‘stable’
- (B) more accurate
- (C) unaffected by acceleration and attitude
- (D) an electrical instrument

115. The turn indicator measures the –
- (A) rate of turn
- (B) radius of turn
- (C) angle of bank
- (D) attitude

116. The Turn and Slip Indicator, AH and DG are all –
(A) gyroscopic instruments
(B) electrical instruments
(C) unaffected by precession
(D) unaffected by precision

117. The magnetic compass suffers errors when –
(A) turning
(B) accelerating
(C) decelerating
(D) all of the above

118. In the Southern hemisphere, when accelerating, the compass will show an apparent turn to the –
(A) east
(B) west SAND
(C) north south

119. Accelerating and decelerating errors will only occur when heading –
(A) east
(B) west
(C) easterly or westerly
(D) northerly or southerly

120. When turning through North, the compass will be –
(A) ahead of the aircraft heading ONUS
(B) behind the aircraft heading
(C) unaffected
(D) accelerating

121. In level flight the magnetic compass will lag behind the aircraft heading when turning through –
(A) east
(B) west
(C) north
(D) south

122. The magnetic compass reading may be in error if –
(A) the compass fluid is discoloured
(B) there is an air bubble in the compass fluid
(C) the glass has a leak
(D) all of the above

Note: The following questions are aircraft specific. Apply your aircraft to each question and skip any questions not relating to your aircraft.

123. Calculate the Max TOW required in your A/C under the following conditions:
PHt = 2500ft
Temp = 20^{o}C
T/off Dist = 800m (2625ft)
Runway 28/10
Slope 1% down to the west
Wind = 100/10kts
Surface = short wet grass

C152
(A) 720kg
(B) 750kg

(C) 600kg
(D) 735kg

C172
(A) 965kg
(B) 1030kg
(C) 900kg
(D) 1000kg

PA28
(A) 2300lbs
(B) 2240lbs
(C) 2130lbs
(D) 2100lbs

124. Calculate the amount of fuel you can carry in VH-ZWF with Front Row weight 180kg, Rear Seat weight 40kg & 20kg baggage:
(A) 158lt
(B) 82lt
(C) 145lt
(D) 182lt

125. What is the total Datum from the previous question?
(A) 198
(B) 75
(C) 174
(D) 87

126. Calculate the amount of fuel you can carry in VH-BUQ with 2 POB (80kg & 90kg) and no baggage:
(A) 57 litres
(B) 92 litres
(C) 79 litres
(D) 41 litres

127. What is the total load moment (/1000kgmm) from the previous question?
(A) 626
(B) 500
(C) 648
(D) 630

128. Calculate the amount of fuel you can carry in VH-MSJ with Front Row 150kg, Back Row 60kg and 30kg baggage (Area 1). (Remember to always put the heaviest passenger in the front.)
(A) 189 litres
(B) 84 litres
(C) 98 litres
(D) 162 litres

129. What is the total load moment (/1000kgmm) from the previous question?
(A) 1050
(B) 1090
(C) 1060
(D) 1100

130. During refuelling, your aircraft must not be within:
(A) 8 metres of any other stationary aircraft
(B) 20m of any exposed public area

(C) 5m of any sealed building
(D) 50m of the aeroclub

131. A ‘Tempo’ in the weather forecast is used to indicate changes in conditions which are expected to last for:
(A) 60mins or more
(B) less than 60mins but more than 30mins
(C) 30mins or more
(D) less than 30mins

132. In Aerodrome and Trend forecasts (TAF’s & TTF’s), cloud heights are given:
(A) above aerodrome elevations
(B) as a flight level
(C) in reference to mean sea level
(D) above circuit height

133. Using the flight computer calculate you TAS if your indicated A/S is 100kts @ a Pressure Ht of 5000 ft & OAT -10 ^{o}C
(A) 105kts
(B) 95kts
(C) 96kts
(D) 110kts

134. Which of the following types of cloud arte most likely to cause turbulence?
(A) nimbostratus
(B) cumulonimbus
(C) cirrus
(D) stratus

135. What does a flashing red light from a control tower mean to an aircraft in flight?
(A) Land as quickly as possible
(B) stop
(C) go
(D) do not land (aerodrome unsafe)

136. What is the meaning of a large white cross near the wind indicator and an aerodrome
(A) gliding operations in progress
(B) Buried Treasure
(C) Grass surfaces not available
(D) Aerodrome unserviceable

137. You are more likely to encounter wake turbulence:
(A) taking off directly behind a B747
(B) taxing behind a B52
(C) flying above a Dash 8
(D) flying behind a C152

138. Pressure height may be ascertained by reading directly from the altimeter when the sub-scale is set to –
(A) 1013.2 mb
(B) QFE (field elevation)
(C) QNH (nominal sea level height)
(D) Aerodrome elevation

139. To calculate the pressure height, the variation from ISA (1013.2 hPa) is –
(A) 30’ / hPa
(B) subtract 30’/hPa for each hPa higher than ISA pressure

(C) add 30'/hPa for each hPa lower than ISA pressure
(D) all of the above

140. If a station at 1200' has an area QNH of 1020 hPa, what is the pressure height at the station?
(A) 990'
(B) 1410'
(C) 360'
(D) 2040'

141. If an aerodrome at 1200' has an area QNH of 1006 hPa, what is the pressure height at the station?
(A) 990'
(B) 1410'
(C) 360'
(D) 2040'

142. An aerodrome has a height of 90' and the area QNH is 1003hPa. What would be the QFE at the aerodrome?
(A) 1013 hPa
(B) 1003 hPa
(C) 1000 hPa
(D) 1006 hPa

143. The International Standard Atmosphere is said to be-
(A) 1013.2hPa and 15^{o}C at sea level
(B) 1013.2hPa and 20^{o}C at sea level
(C) 1013.2hPa ± 2hPa at sea level
(D) 1013.2hPa ± 120' at sea level

144. The ISA temperature has a standard lapse rate of-
(A) 2 ^{o}C/1000'
(B) 120'/1000hPa
(C) 15^{o}C at sea level
(D) 1013.2hPa at sea level

145. The ISA temperature at 8000' should be –
(A) 15 ^{o}C
(B) 1013.2hPa
(C) -1 ^{o}C
(D) -9 ^{o}C

146. The ISA temperature at 5000' should be –
(A) 15 ^{o}C
(B) 1013.2hPa
(C) -1 ^{o}C
(D) 5 ^{o}C

147. Density height differs from pressure height due to temperature. When the temperature is higher or lower than ISA temperature the variation from the pressure height to density height is –
(A) 120'/1 ^{o}C difference from ISA temperature
(B) 30'/1 ^{o}C difference from ISA temperature
(C) 2 ^{o}C/1000'
(D) 120'/2 ^{o}C difference from ISA temperature

148. When the temperature is higher than the ISA temperature, the density height is –
(A) the same as pressure height
(B) lower than the pressure height

(C) higher than the pressure height
(D) not related to pressure height

149. If at sea level the temperature is 20 ^{o}C, what is the density height?
(A) 0 feet
(B) 600 feet
(C) –600 feet
(D) 150 feet

150. If the temperature at 7000’ is 11 ^{o}C, what is the density height?
(A) 7011 feet
(B) 5800 feet
(C) 7300 feet
(D) 8200 feet

151. The temperature being higher than ISA temperature will have the effect on take-off performance of –
(A) increasing the rate of climb
(B) increasing the angle of climb
(C) increasing the L/D ratio
(D) increasing the distance required for take-off

152. The effect on performance of the temperature being lower than ISA temperature is to –
(A) reduce the manifold pressure required
(B) increase the manifold pressure required
(C) have no effect on manifold pressure
(D) increase fuel flow

153. If an aircraft has a straight and level stalling speed of 60kts. With all other factors remaining constant, what will be the stalling speed in the same aircraft in a 60° angle of bank turn (load factor 2)?
(A) 60 kts
(B) 74 kts
(C) 84 kts
(D) 120 kts

Answers

1.	C	32.	B	63.	C	94.	C		PA28:C
2.	B	33.	D	64.	B	95.	B	124.	D
3.	D	34.	D	65.	D	96.	A	125.	D
4.	D	35.	A	66.	C	97.	B	126.	C
5.	C	36.	A	67.	A	98.	B	127.	A
6.	A	37.	C	68.	C	99.	A	128.	D
7.	B	38.	A	69.	C	100.	C	129.	D
8.	B	39.	D	70.	D	101.	B	130.	C
9.	D	40.	B	71.	C	102.	A	131.	B
10.	A	41.	A	72.	D	103.	D	132.	A
11.	C	42.	C	73.	C	104.	C	133.	A
12.	B	43.	A	74.	A	105.	A	134.	B
13.	C	44.	D	75.	C	106.	A	135.	D
14.	C	45.	B	76.	C	107.	B	136.	D
15.	D	46.	A	77.	B	108.	D	137.	A
16.	D	47.	B	78.	A	109.	C	138.	A
17.	B	48.	C	79.	C	110.	B	139.	D
18.	A	49.	A	80.	D	111.	A	140.	A
19.	C	50.	A	81.	D	112.	D	141.	B
20.	A	51.	B	82.	B	113.	D	142.	C
21.	B	52.	D	83.	C	114.	C	143.	A
22.	D	53.	D	84.	D	115.	A	144.	A
23.	C	54.	A	85.	B	116.	A	145.	C
24.	B	55.	B	86.	D	117.	D	146.	D
25.	D	56.	A	87.	D	118.	D	147.	A
26.	A	57.	D	88.	C	119.	C	148.	C
27.	D	58.	C	89.	C	120.	A	149.	B
28.	D	59.	B	90.	A	121.	D	150.	D
29.	C	60.	B	91.	D	122.	D	151.	D
30.	B	61.	D	92.	B	123.	C152: B	152.	A
31.	C	62.	A	93.	A		C172: A	153.	C

77. As the a/c climbs the density of the air becomes less, so less fuel is required to maintain the fuel/air ratio.

83. The engine is air cooled and increasing the air through the engine will increase cooling.

92. If carburettor heat is not used the engine may stop altogether

93. Manifold pressure is a gauge of power, so if power is reduced IAS will reduce but being a constant speed propeller, the RPM will remain constant.

95. Because the amount of air into the carby has been reduced

96. Because the butterfly valve on the carby is closed, restricting the airflow

100. Total air pressure is dynamic plus static air pressure

103. The ASI measures the difference between total air pressure and static air pressure. The static air pressure will be higher at lower levels but the total air pressure at 8000’ will still be trapped in the pitot causing the ASI to underread.

104. This is the same as 103 in reverse.

106. Regardless of the height the pressure at 8500’ is still trapped in the altimeter

107. Similar to 106, the VSI reads the rate of change of pressure, so if the static vent is blocked it will show no rate of change

118. SAND means an apparent turn to the South, Accelerating and
an Apparent turn to the North, Decelerating

120. ONUS means Overshoot North, Undershoot South

140. Pressure height is related to the International Standard Atmosphere

(ISA) pressure which is 1013hPa. The area QNH of 1020hPa is 7hPa higher (heavier) than ISA and at 30’/hPa is 7hPa x 30’ = 210’ lower in the atmosphere ie the pressure height is 990’

141. Similar to Q125 the area QNH is 7hPa lower (lighter) than ISA ie. 210’ higher in the atmosphere, 1410’
142. At 30’/hPa wind 3hPa off the altimeter ie. 1000hPa
143. The ISA lapse rate is 2^{o}C/1000’ ie. from sea level at ISA temperature of 15 ^{o}C subtract 2 ^{o}C for every 1000’ you ascend
149. At sea level ISA temperature is 15 ^{o}C so at 20 ^{o}C the temperature is 5 ^{o}C hotter (higher) than ISA, and at 120’/1 ^{o}C is 5 ^{o}Cx120’ = 600’. Ie. the density height will be 600’ above sea level.
150. Similar to Q134, the temperature at 7000’ at ISA should be 1 ^{o}C (using the standard lapse rate of 2 ^{o}C/1000’ from sea level) so at 11 ^{o}C it is 10 ^{o}C hotter than ISA and at 120’/1 ^{o}C = 1200’ higher than the pressure height of 7000’. Ie. the density height is 8200’