Module Eight

1. On a swept wing aircraft if both wing tip sections lose lift simultaneously the aircraft will
   a) roll
\# b) pitch nose up
   c) pitch nose down

2. Lift on a delta wing aircraft
\# a) increases with an increased angle of incidence (angle of attack)
   b) decreases with an increase in angle of incidence (angle of attack)
   c) does not change with a change in angle of incidence (angle of attack)

3. on a straight wing aircraft, stall commences at the
\# a) root on a high thickness ratio wing
   b) tip on a high thickness ratio wing
   c) tip on a low thickness ratio wing

4. On a high wing aircraft in a turn
   a) the up-going wing loses lift causing a de-stabilizing effect
\# b) the down-going wing gains lift causing a stabilizing effect
   c) the down-going wing loses lift causing a de-stabilizing effect

5. for the same angle of attack, the lift on a delta wing
   a) is greater than the lift on a high aspect ratio wing
\# b) is lower than the lift on a high aspect ratio wing
   c) is the same as the lift on a high aspect ratio wing

6. The ISA?
   a) is taken from the equator
\# b) is taken from 45 degrees latitude
   c) assumes a standard day

7. at higher altitudes as altitude increases, pressure
   a) decreases at constant rate
   b) increases exponentially
\# c) decreases exponentially

8. The thrust-drag couple overcomes the lift-weight couple. What direction of force is required to be produced by the tail of the aircraft to maintain straight and level flight
\# a) upwards
   b) downwards
   c) sideways

9. When the pressure is half of that at sea level, what is the altitude?
a) 12,000 ft
b) 8,000 ft
 # c) 18,000 ft

10. during a turn, the stalling angle
a) increases
b) decreases
 # c) remains the same

11. If gauge pressure on a standard day at sea level is 25 PSI, the absolute pressure is
a) 10.3 PSI
b) 43.8 PSI
 # c) 39.7 PSI

12. The C of G moves in flight. The most likely cause of this is
a) movement of passengers
b) movement of the centre of pressure
 # c) consumption of fuel and oils

13. The C of P is the point where
a) all the forces on an aircraft act
b) the three axis of rotation meet
 # c) the lift can be said to act

14. The three axis of an aircraft act through the
 # a) C of G
b) C of P
c) stagnation point

15. Pressure decreases
 # a) proportionally with a decreases in temperature
b) inversely proportional to temperature
c) Pressure and temperature are not related

16. As air gets colder, the service ceiling of an aircraft
a) reduces
 # b) increases
c) remains the same

17. What is sea level pressure?
 # a) 1013.2 mb
b) 1012.3 mb
c) 1032.2 mb

18. When the weight of an aircraft increases, the minimum drag speed

a) decreases

 # b) increases

c) remains the same

19. An aircraft will have

a) less gliding distance if it has more payload

b) more gliding distance if it has more payload

 # c) the same gliding distance if it has more payload

20. When an aircraft experiences induced drag

 # a) air flows under the wing spanwise towards the tip and on top of the wing spanwise towards the root

b) air flows under the wing spanwise towards the root and on top of the wing spanwise towards the tip

c) Neither a) or b) since induced drag does not caused by spanwise flow

21. At stall, the wingtip stagnation point

 # a) moves toward the lower surface of the wing

b) moves toward the upper surface of the wing

c) doesn't move

22. How does IAS at the point of stall vary with height?

 # a) It is practically constant

b) It increases

c) It decreases

23. The rigging angle of incidence of an elevator is

 # a) the angle between the mean chord line and the horizontal in the rigging position

b) the angle between the bottom surface of the elevator and the horizontal in the rigging position

c) the angle between the bottom surface of the elevator and the longitudinal datum

24. What is the lapse rate with regard to temperature?

 # a) 1.98°C per 1000 ft

b) 1.98°F per 1000 ft

c) 4°C per 1000 ft

25. What happens to load factor as you decrease turn radius?

 # a) It increases

b) It decreases

c) It remains constant

26. If you steepen the angle of a banked turn without increasing airspeed or angle of attack, what will the aircraft do?

a) It will remain at the same height
 # b) It will sideslip with attendant loss of height
c) It will stall

27. An aircraft wing tends to stall first at

a) the tip due to a higher ratio thickness/chord
b) the tip due to a lower ratio thickness/chord
 # c) the root due to a higher ratio thickness/chord

28. Dihedral wings combat instability in

a) pitch
b) yaw
 # c) sideslip

29. To stop aircraft decreasing in height during a sideslip, the pilot can

 # a) advance the throttle
b) pull back on the control column
c) adjust the rudder position

30. What control surface movements will make an aircraft fitted with ruddervators yaw to the left?

 # a) Left ruddervator lowered, right ruddervator raised
b) Right ruddervator lowered, left ruddervator raised
c) Both ruddervators raised

31. When a leading edge slat opens, there is a gap between the slat and the wing. This is

a) to allow it to retract back into the wing
 # b) to allow air through to re-energize the boundary layer on top of the wing
c) to keep the area of the wing the same

32. Which of the following is true?

a) Lift acts at right angles to the wing chord line and weight acts vertically down
 # b) Lift acts at right angles to the relative airflow and weight acts vertically down
c) Lift acts at right angles to the relative air flow and weight acts at right angles to the aircraft centre line

33. If the wing tips stall before the root on a swept wing aircraft, the aircraft will

a) roll
 # b) pitch nose up
c) pitch nose down

34. Lift on a delta wing aircraft

 # a) increases with an increased angle of incidence (angle of attack)
b) decreases with an increase in angle of incidence (angle of attack)
c) does not change with a change in angle of incidence (angle of attack)

35. On a straight wing aircraft, stall commences at the

 # a) root on a high thickness ratio wing
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c) tip on a low thickness ratio wing

36. On a high wing aircraft in a turn

a) the up-going wing loses lift causing a de-stabilizing effect
 # b) the down-going wing gains lift causing a stabilizing effect
c) the down-going wing loses lift causing a de-stabilizing effect

37. For the same angle of attack, the lift on a delta wing

a) is greater than the lift on a high aspect ratio wing
 # b) is lower than the lift on a high aspect ratio wing
c) is the same as the lift on a high aspect ratio wing

38. Standard sea level temperature is

a) 0 degrees Celsius
 # b) 15 degrees Celsius
c) 20 degrees Celsius

39. As altitude increases, pressure

a) decreases at constant rate
b) increases exponentially
 # c) decreases exponentially

40. The thrust-drag couple overcomes the lift-weight couple. What direction of force is required to be produced by the tail of the aircraft to maintain straight and level flight?

 # a) Upwards
b) Downwards
c) Sideways

41. Lapse rate usually refers to

a) Pressure
b) Density
 # c) Temperature

42. During a turn, the stalling angle

a) increases
b) decreases
 # c) remains the same

43. The vertical fin of a single engined aircraft is

 # a) parallel with both the longitudinal axis and vertical axis
b) parallel with the longitudinal axis but not the vertical axis
c) parallel with the vertical axis but not the longitudinal axis

44. Aircraft flying in the transonic range most often utilize

 # a) sweptback wings
b) advanced supercritical airfoils
c) high wings

45. Which type of flap changes the area of the wing?

 # a) Fowler
b) Split
c) Slotted

46. Forward swept wings tend to stall at the root first so the aircraft retains lateral control, so why are they never used on passenger aircraft?

a) Because the wing tips wash in at high wing loads
b) Because the wing tips wash out at high wing loads
 # c) Because at high loads their angle of incidence increases and the loads imposed on the wing can increase until they destroy it

47. What happens to air flowing at the speed of sound when it enters a converging duct?

 # a) Velocity decreases, pressure and density increase
b) Velocity increases, pressure and density decreases
c) Velocity, pressure and density increase

48. As the angle of attack of an airfoil increases the centre of pressure

 # a) moves forward
b) moves aft
c) remains stationary

49. An aircraft, which is longitudinally stable, will tend to return to level flight after a movement about which axis?

 # a) Pitch
b) Roll
c) Yaw

50. Vapour trails from the wingtips of an aircraft in flight are caused by

 # a) low pressure above the wing and high pressure below the wing causing vortices
b) high pressure above the wing and low pressure below the wing causing vortices
c) low pressure above the wing and high pressure below the wing causing a temperature rise

51. Vortex generators on the wing are most effective at
a) high speed
b) low speed
 # c) high angles of attack

52. The chord line of a wing is a line that runs from
 # a) the centre of the leading edge of the wing to the trailing edge
b) half way between the upper and lower surface of the wing
c) one wing tip to the other wing tip

53. The angle of incidence of a wing is an angle formed by lines
 # a) parallel to the chord line and longitudinal axis
b) parallel to the chord line and the lateral axis
c) parallel to the chord line and the vertical axis

54. The centre of pressure of an aerofoil is located
 # a) 30 - 40% of the chord line back from the leading edge
b) 30 - 40% of the chord line forward of the leading edge
c) 50% of the chord line back from the leading edge

55. Compressibility effect is
a) drag associated with the form of an aircraft
b) drag associated with the friction of the air over the surface of the aircraft
 # c) the increase in total drag of an airfoil in transonic flight due to the formation of shock waves

56. Lateral control of an aircraft at high angle of attack can be maximized by using
a) fences
 # b) vortex generators
c) wing slots

57. Stall strips are always
a) made of metal
 # b) on the leading edge of a wing
c) fitted forward of the ailerons

58. Stall strips
 # a) cause the wing root to stall
b) cause the wing tip to stall
c) cause the wings to stall symmetrically

59. Due to the interference of the airflow on a high wing aircraft between the fuselage and the wings, the lateral stability of the aircraft in a gusty wind situation will cause
a) the upper wing to increase its lift
 # b) the upper wing to decrease its lift
c) the lower wing to decrease its lift

60. Slats
 # a) reduce the stall speed
b) reduce the tendency of the aircraft to Yaw
c) decrease the aerofoil drag at high speeds

61. A high aspect ratio wing will give
a) high profile and low induced drag
b) low profile and high induced drag
 # c) low profile and low induced drag

62. Aerofoil efficiency is defined by
 # a) lift over drag
b) drag over lift
c) lift over weight

63. An aircraft banks into a turn. No change is made to the airspeed or angle of attack. What will happen?
 # a) The aircraft enters a side slip and begins to lose altitude
b) The aircraft turns with no loss of height
c) The aircraft yaws and slows down

64. The relationship between induced drag and airspeed is
a) directly proportional to the square of the speed
 # b) inversely proportional to the square of the speed
c) directly proportional to speed

65. What is the definition of Angle of Incidence?
a) The angle the underside of the mainplane or tailplane makes with the horizontal
b) The angle the underside of the mainplane or tailplane makes with the longitudinal datum line
 # c) The angle the chord of the mainplane or tailplane makes with the horizontal

66. What is Boundary Layer?
a) Separated layer of air forming a boundary at the leading edge
b) Turbulent air moving from the leading edge to trailing edge
 # c) Sluggish low energy air that sticks to the wing surface and gradually gets faster until it joins the free stream flow of air

67. The normal axis of an aircraft passes through
 # a) the centre of gravity
b) a point at the center of the wings
c) at the centre of pressure

68. on a high winged aircraft, what effect will the fuselage have on the up-going wing?

 # a) The up-going wing will have a decrease in angle of attack and therefore a decrease in lift

b) The down-going will have a decrease in angle of attack and therefore a decrease in lift

c) The up-going wing will have an increase in angle of attack and therefore a decrease in lift

69. What is the collective term for the fin and rudder and other surfaces aft of the centre of gravity that helps directional stability?

 # a) Effective keel surface

b) Empennage

c) Fuselage surfaces

70. Temperature above 36,000 feet will

a) decrease exponentially

 # b) remain constant

c) increase exponentially

71. A decrease in incidence toward the wing tip may be provided to

a) prevent adverse yaw in a turn

b) prevent spanwise flow in maneuvers

 # c) retain lateral control effectiveness at high angles of attack

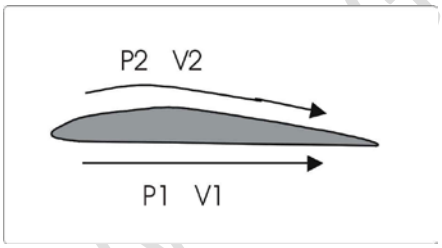
72. The angle of attack which gives the best L/D ratio

a) decreases with a decrease in density

 # b) in unaffected by density changes

c) increases with a decrease in density

73. for a given aerofoil production lift, where
P = pressure and V = velocity:



a) P1 is greater than P2, and V1 is greater than V2

b) P1 is less than P2 and V1 is greater than V2

 # c) P1 is greater than P2, and V1 is less than V2

74. Low wing loading

a) increases stalling speed, landing speed and landing run

b) increases lift, stalling speed and maneuverability

 # c) decreases stalling speed, landing speed and landing run

75. Due to the change in downwash on an untapered wing (i.e. one of constant chord length) it will

a) not provide any damping effect when rolling
 # b) tend to stall first at the root
c) not suffer adverse yaw effects when turning

76. True stalling speed of an aircraft increases with altitude

a) because reduced temperature causes compressibility effect
 # b) because air density is reduced
c) because humidity is increased and this increases drag

77. As a general rule, if the aerodynamic angle of incidence (angle of attack) of an aerofoil is slightly increased, the centre of pressure will

a) never move
 # b) move forward towards the leading edge
c) move towards the tip

78. The "wing setting angle" is commonly known as

 # a) angle of incidence
b) angle of attack
c) angle of dihedral

79. on a very humid day, an aircraft taking off would require

a) a shorter take off run
 # b) a longer take off run
c) humidity does not affect the take off run

80. an aircraft is flying at 350 MPH, into a head wind of 75 MPH, what will its ground speed be?

a) 175 mph
 # b) 275 mph
c) 200 mph

81. When does the angle of incidence change?

a) When the aircraft attitude changes
b) When the aircraft is ascending or descending
 # c) It never changes

82. as the angle of attack decreases, what happens to the centre of pressure?

a) It moves forward
 # b) It moves rearwards
c) Centre of pressure is not affected by angle of attack decrease

83. A decrease in pressure over the upper surface of a wing or aerofoil is responsible for

 # a) approximately 2/3 (two thirds) of the lift obtained
b) approximately 1/3 (one third) of the lift obtained
c) approximately 1/2 (one half) of the lift obtained

84. Which of the four forces act on an aircraft?

 # a) Lift, gravity, thrust and drag

b) Weight, gravity, thrust and drag

c) Lift, weight, gravity and drag

85. Which of the following types of drag increases as the aircraft gains altitude?

a) Parasite drag

 # b) Induced drag

c) Interference drag

86. Correcting for a disturbance which has caused a rolling motion about the longitudinal axis would re-establish which of the following?

 # a) Lateral stability

b) Directional stability

c) Longitudinal stability

87. the layer of air over the surface of an aerofoil which is slower moving, in relation to the rest of the airflow, is known as

a) camber layer

 # b) boundary layer

c) none of the above

88. What is a controlling factor of turbulence and skin friction?

a) Aspect ratio

b) Fineness ratio

 # c) Counter sunk rivets used on skin exterior

89. Changes in aircraft weight

a) will not affect total drag since it is dependant only upon speed

 # b) cause corresponding changes in total drag due to the associated lift change

c) will only affect total drag if the lift is kept constant

90. The aircraft stalling speed will

 # a) increase with an increase in weight

b) be unaffected by aircraft weight changes since it is dependant upon the angle of attack

c) only change if the MTMA were changed

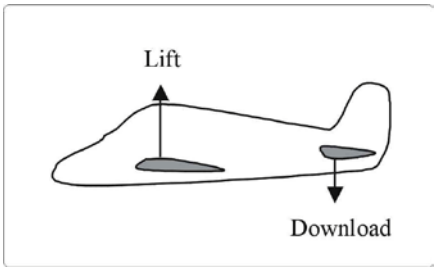
91. In a bank and turn

a) extra lift is not required

b) extra lift is not required if thrust is increased

 # c) extra lift is required

92. To maintain straight and level flight on the aeroplane shown, with a decrease in tail-plane download the mainplane lift would have to



a) remain constant
 # b) decrease
c) increase

93. To achieve the maximum distance in a glide, the recommended air speed is
a) as close to the stall as practical
b) as high as possible with VNE
 # c) the speed where the L/D ratio is maximum

94. If the C of G is aft of the Centre of Pressure
 # a) changes in lift produce a pitching moment which acts to increase the change in lift
b) when the aircraft sideslips, the C of G causes the nose to turn into the sideslip thus applying a restoring moment
c) when the aircraft yaws the aerodynamic forces acting forward of the Centre of Pressure

95. Proposing is an oscillatory motion in the
 # a) pitch plane
b) roll plane
c) yaw plane

96. Directional stability is maintained

a) by the mainplanes, and controlled by the ailerons
b) by the tailplane, and controlled by the elevators
 # c) by the keel surface and fin, and controlled by the rudder

97. Due to the interference effects of the fuselage, when a high wing aeroplane sideslips
a) the accompanying rolling due to keel surface area is destabilizing
 # b) the accompanying lift changes on the wings produces a stabilizing effect
c) the accompanying rolling due to the fin is destabilizing

98. The power required in a horizontal turn
 # a) is greater than that for level flight at the same airspeed
b) must be the same as that for level flight at the same airspeed
c) is less than that for level flight at the same airspeed

99. A wing mounted stall sensing device is located

 # a) usually on the under surface

b) always at the wing tip

c) always on the top surface

100. For an aircraft in a glide

a) thrust, drag, lift and weight act on the aircraft

 # b) weight, lift and drag act on the aircraft

c) weight and drag only act on the aircraft

101. The upper part of the wing in comparison to the lower

 # a) develops more lift

b) develops the same lift

c) develops less lift

102. What effect would a forward CG have on an aircraft on landing?

 # a) Increase stalling speed

b) No effect on landing

c) Reduce stalling speed

103. QNH refers to

a) Quite near horizon

b) setting the altimeter to zero

 # c) setting the mean sea level atmospheric pressure so an altimeter reads the aerodrome altitude above mean sea level

104. QNE refers to

a) Setting an altimeter to read aerodrome altitude above sea level

b) Quite new equipment

 # c) setting the mean sea level atmospheric pressure in accordance with ICAO standard atmosphere i.e. 1013 millibars

105. An aspect ratio of 8 would mean

 # a) span 64, mean chord 8

b) mean chord 64 , span 8

c) span squared 64 ,chord 8

106. If an aircraft in level flight loses engine power it will

a) pitch nose up

 # b) pitch nose down

c) not change pitch without drag increasing

107. QFE is

a) sea level pressure

 # b) airfield pressure

c) difference between sea level and airfield pressure

108. The lift /drag ratio at stall

a) increases

 # b) decreases

c) is unchanged

109. On a straight unswept wing, stall occurs at

 # a) the thick portion at the wing root

b) the thick portion at the wing tip

c) the thin portion at the wing tip

110. During a climb from a dive

a) the thrust required is greater than required for level flight

 # b) the thrust required is lower than for level flight

c) the thrust required is the same as for level flight

111. When power is off, the aircraft will pitch

 # a) nose down

b) nose up

c) trim level

112. Angle of attack on a down going wing in a roll

 # a) increases

b) decreases

c) unaffected

113. For any given speed, a decrease in aircraft weight, the induced drag will

a) increase

 # b) decrease

c) remain the same

114. The amount of lift generated by a wing is

 # a) greatest at the root

b) greatest at the tip

c) constant along the span

115. Induced Drag is

a) greatest towards the wing root and downwash is greatest at the tip

b) greatest towards the wing tip and downwash is greatest towards the root

 # c) greatest towards the tip and downwash decreases from tip to root

116. Induced Drag is
a) equal to profile drag at stalling angle
 # b) equal to profile drag at Vmd
c) never equal to profile drag

117. With an increase in aircraft weight
a) V_{md} will be at the same speed
b) V_{md} will be at a lower speed
 # c) V_{md} will be at a higher speed

118. For a given IAS an increase in altitude will result in
a) no change in the value of induced drag
 # b) an increase in induced drag
c) an increase in profile drag

119. As the angle of attack of a wing is increased in level flight
a) the Cof G moves aft and the Cof P forward
 # b) the Cof P and transition point move forward
c) the Cof P moves forward and the stagnation point aft over the upper surface

120. Stall inducers may be fitted to a wing
a) at the tip to cause the root to stall first
b) at the root to cause the tip to stall first
 # c) at the root to cause the root to stall first

121. With increasing altitude pressure decreases and
a) temperature decreases at the same rate as pressure reduces
 # b) temperature decreases but at a lower rate than pressure reduces
c) temperature remains constant to 8000 ft

122. The Centre of Pressure is
 # a) the point on the chord line at which the resultant lift force may be said to act
b) the point of maximum pressure on the under surface of the wing
c) the centre of gravity of the wing

123. If the angle of attack is increased the Centre of Pressure will
 # a) move forward
b) move rearward
c) remain stationary

124. The optimum angle of attack of an aerofoil is the angle at which
a) the aerofoil produces maximum lift
b) the aerofoil produces zero lift
 # c) the highest lift/drag ratio is produced

125. A high aspect ratio wing has a
a) increased induced drag
 # b) decreased induced drag
c) decreased skin friction drag

126. Minimum total drag of an aircraft occurs
a) at the stalling speed
 # b) when profile drag equals induced drag
c) when induced drag is least

127. If the weight of an aircraft is increased, the induced drag at a given speed
 # a) will increase
b) will decrease
c) will remain the same

128. The transition point on a wing is the point where
a) the flow separates from the wing surface
 # b) the boundary layer flow changes from laminar to turbulent
c) the flow divides to pass above and below the wing

129. The boundary layer of a body in a moving airstream is
a) a thin layer of air over the surface where the air is stationary
b) a layer of separated flow where the air is turbulent
 # c) a layer of air over the surface where the airspeed is changing from free stream speed to zero speed

130. A laminar boundary layer will produce
a) more skin friction drag than a turbulent one
 # b) less skin friction drag than a turbulent one
c) the same skin friction drag as a turbulent one

131. Longitudinal stability is given by
a) the fin
b) the wing dihedral
 # c) the horizontal tailplane

132. Lateral stability is given by
a) the aileron

s
 # b) the wing dihedral
c) the horizontal tailplane

133. Stability about the lateral axis is given by
a) wing dihedral
 # b) the horizontal tailplane

c) the ailerons

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134. Sweepback of the wings will
a) increase lateral stability
b) decrease lateral stability
c) not affect the lateral stability

135. Dutch Roll is
a) a combined rolling and yawing motion
b) a type of slow roll
c) primarily a pitching instability

136. A high wing position gives
a) more lateral stability than a low wing
b) less lateral stability than a low wing
c) the same lateral stability as a low wing

137. On an aircraft in an unpowered steady speed descent
a) the lift equals the weight
b) the weight equals the drag
c) the weight equals the resultant of the lift and drag

138. When an aircraft rolls to enter a turn and power is not increased
a) the lift equals the weight
b) the lift is greater than the weight
c) the lift is less than the weight

139. The boundary layer is
a) thickest at the leading edge
b) thickest at the trailing edge
c) constant thickness from leading to trailing edges

140. The amount of thrust produced by a jet engine or a propeller can be calculated using
a) Newton's 1st law
b) Newton's 2nd law
c) Newton's 3rd law

141. An engine which produces an efflux of high speed will be
a) more efficient
b) less efficient
c) speed of efflux has no affect on the engine efficiency

142. When an aircraft with a C of G forward of the C of P rolls, the nose of the aircraft will
a) stay level

b) rise
c) drop

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143. Directional stability may be increased with
a) pitch dampers
b) horn balance
c) yaw dampers

144. Lateral stability may be increased with
a) increased lateral dihedral
b) increased lateral anhedral
c) increased longitudinal dihedral

145. Longitudinal stability is increased if the
a) CP moves forward of the CG
b) Thrust acts on a line below the total drag
c) CG is forward of the CP

146. Wing loading is calculated by weight
a) divided by gross wing area
b) divided by lift
c) multiplied by gross wing area

147. Induced drag is
a) inversely proportional to the square of speed
b) proportional to speed
c) nothing to do with speed

148. In a bank, the weight is
a) increased
b) decreased
c) the same

149. L/D ratio is
a) higher at supersonic cruise speed
b) higher at sub sonic speed
c) the same

150. The power required at low altitude for a given IAS is
a) the same as at high altitude
b) higher
c) lower

151. If the stall speed is 75 knots what is the same stall speed in mph

a) 75 x 0.87
b) 75 / 0.87
c) 75 / 0.87 x relative density

152. As the angle of attack increases the stagnation point
a) moves towards the upper surface
b) moves towards the lower surface
c) does not move

153. The term pitch-up is due to
a) compressibility effect
b) ground effect
c) longitudinal instability

154. In a steady climb at a steady IAS, the TAS is
a) more than IAS
b) less than IAS
c) the same

155. An untapered wing will
a) have no yaw effect in banking
b) have no change in induced drag in the bank
c) stall at the root first

156. With the ailerons away from the neutral, induced drag is
a) unchanged but profile drag is higher
b) higher on the lower wing plus profile drag increases
c) higher on the upper wing plus profile drag increases

157. The lift drag ratio is
a) higher at mach numbers above supersonic
b) higher at sub sonic mach numbers
c) the same

158. The force opposing thrust is
a) drag
b) lift
c) Weight

159. Directional stability is about the
a) normal axis
b) longitudinal axis
c) lateral axis

160. Lateral stability is about the
a) longitudinal axis
b) normal axis

c) vertical axis

161. All the lift can be said to act through the
a) centre of pressure
b) centre of gravity
c) normal axis

162. Longitudinal stability is provided by the
a) horizontal stabilizer
b) vertical stabilizer
c) mainplane

163. The concept of thrust is explained by
a) Newton's 1st law
b) Newton's 3rd law
c) Bernoulli's theorem

164. The camber of an aerofoil section is
a) the curvature of the median line of the aerofoil
b) the angle of incidence towards the tip of a wing
c) the angle which the aerofoil makes with the relative airflow

165. If the aircraft turns and side-slips
a) the sweepback of the wing will correct the sideslip
b) the dihedral of the wing will correct the sideslip
c) the keel surface will correct the sideslip

166. Movement of an aircraft about its lateral axis
a) is pitching
b) is rolling
c) is yawing

167. Induced drag
a) is caused by skin friction
b) results from disturbed airflow in the region of mainplane attachments
c) is associated with the lift generated by an aerofoil

168. The centre of pressure is
a) the point on the chord line through which the total resultant lift force on the aerofoil may be said to act
b) the point of maximum pressure on the undersurface of a mainplane
c) the point at which the four forces acting on an aircraft are said to act

169. At what altitude is tropopause
a) 63,000 ft.
b) 36,000 ft.
c) 57,000 ft.

170. What approximate percentage of oxygen is in the atmosphere

a) 12%

 # b) 21%

c) 78%

171. Which has the greater density

 # a) air at low altitude

b) air at high altitude

c) it remains constant

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172. As air flows over the upper cambered surface of an aerofoil, what happens to velocity and pressure?

a) Velocity decreases, pressure decreases

b) Velocity increases, pressure increases

 # c) Velocity increases, pressure decreases

173. What is the force that tends to pull an aircraft down towards the earth?

a) Drag

b) Thrust

 # c) Weight

174. Which of the following act in opposition to forward movement?

a) Lift

b) Gravity

 # c) Drag

175. The angle at which the chord line of the aerofoil is presented to the airflow is known as

 # a) angle of attack

b) angle of incidence

c) resultant

176. The imaginary straight line which passes through an aerofoil section from leading edge to trailing edge is called

a) centre of pressure

b) the direction of relative airflow

 # c) the chord line

177. What is the angle between the chord line of the wing, and the longitudinal axis of the aircraft, known as

a) angle of attack

 # b) angle of incidence

c) angle of dihedral

178. An aircraft disturbed from its normal flight path, and automatically returns to that normal flight path, without any action on the part of the pilot is known as

a) aircraft stability
b) aircraft instability
c) aircraft stall

179. Directional control is provided by
a) horizontal stabilizer
b) rudder
c) elevator

180. About which axis of the aircraft does a rolling motion take place?
a) Normal axis
b) Longitudinal axis
c) Lateral axis

181. Which motion happens about the lateral axis?
a) Pitching
b) Yawing
c) Rolling

182. Wing tip vortices create a type of drag known as
a) form drag
b) induced drag
c) profile drag

183. Which of the following describes the "Empennage"?
a) Nose section of an aircraft, including the cockpit
b) Tail section of the aircraft, including fin, rudder, tail plane and elevators
c) The wings, including the ailerons

184. At what altitude does stratosphere commence approximately?
a) Sea level
b) 63,000 ft
c) 36,000 ft

185. When an aircraft is in straight and level unaccelerated flight, which of the following is correct?
a) Lift and weight are equal, and thrust and drag are equal
b) Lift greater than weight, and thrust greater than drag
c) Lift greater than weight, and thrust is less than drag

186. As the angle of attack is increased (up to the stall point), which of the following is correct?
a) Pressure difference between top and bottom of the wing increases
b) Lift increases

c) Both a) and b) are correct

187. The fin gives stability about which axis?
a) Lateral axis
b) Normal axis
c) Longitudinal axis

188. What is the horizontal movement of the nose of the aircraft called?
a) Rolling movement
b) Pitching movement
c) Yawing movement

189. What type of drag, depends on the smoothness of the body, and surface area over which the air flows?
a) Parasite drag
b) Form drag
c) Skin friction drag

190. if the nose of the aircraft is rotated about its lateral axis, what is its directional movement?
a) Turning to the left or right
b) Rolling or banking to the left or right
c) Climbing or diving

191. When air flow velocity over an upper cambered surface of an aerofoil decreases, what takes place?
a) Pressure increases, lift decreases
b) Pressure increases, lift increases
c) Pressure decreases, lift increases

192. When an aircraft stalls
a) lift and drag increase
b) lift increases and drag decreases
c) lift decreases and drag increases

193. Wing loading is
a) the maximum all up weight multiplied by the total wing area
b) the maximum all up weight divided by the total wing area
c) the ratio of the all up weight of the aircraft to its basic weight

194. An aircraft wing with an aspect ration of 6:1 is proportional so that
a) the mean chord is six times the thickness
b) the wing span is six times the mean chord
c) the wing area is six times the span

195. Upward and outward inclination of a mainplane is termed

a) sweep

b) dihedral

c) stagger

196. The function of an aircraft fin

a) is to provide stability about the normal axis

b) is to provide directional control

c) is to provide straight airflow across the rudder

197. Movement of an aircraft about its normal axis

a) is pitching

b) is rolling

c) is yawing

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198. A pressure of one atmosphere is equal to

a) 14.7 psi

b) 100 millibar

c) 1 inch Hg.

199. The millibar is a unit of

a) atmospheric temperature

b) pressure altitude

c) barometric pressure

200. With an increase in altitude under I.S.A. conditions the temperature in the troposphere

a) increases

b) decreases

c) remains constant

201. Which of the following forces act on an aircraft in level flight?

a) Lift, thrust, and weight

b) Lift, thrust, weight, and drag

c) Lift, drag, thrust

202. When an aircraft is banked, the horizontal component of the lift

a) will tend to make the aircraft follow a circular path

b) will oppose the tendency of the aircraft to follow a circular path

c) will oppose the weight thus requiring more total lift in the turn

203. If, after a disturbance, an aeroplane initially returns to its equilibrium state

a) it has neutral stability

b) it has static stability and may be dynamically stable

c) it is neutrally unstable

204. Stability of an aircraft is

 # a) the tendency of the aircraft to return to its original trimmed position after having been displaced

b) the ability of the aircraft to rotate about an axis

c) the tendency of the aircraft to stall at low airspeeds

205. With reference to altimeters QFE is

 # a) setting aerodrome atmospheric pressure so that an altimeter reads zero on landing and take off

b) quite fine equipment

c) the manufacturers registered name

206. Under the ICAO "Q" code there are which three settings?

 # a) QFE, QNH, QNE

b) QEF, QNH, QEN

c) QE, QN, QQE

207. Wing loading is

 # a) GROSS WEIGHT divided by GROSS WING AREA

b) WING AREA x WING CHORD

c) the ultimate tensile strength of the wing

208. The three axes concerned with stability of an aircraft have

a) normal axis through C of G. Lateral axis - wing tip to wing tip. Longitudinal axis - nose to tail but not through C of G

 # b) longitudinal, lateral and normal axis all passing through aircraft centre of gravity

c) longitudinal axis nose to tail, lateral axis at furthest span point, normal axis through centre of pressure

209. A barometer indicates

 # a) pressure

b) density

c) temperature

210. If an aircraft returns to a position of equilibrium it is said to be

a) negatively stable

b) neutrally stable

 # c) positively stable

211. The pendulum effect on a high wing aircraft

 # a) increases lateral stability

b) decreases lateral stability

c) has no effect on lateral stability

212. The amount of water vapour in the air (humidity holding capacity of the air) is

a) greater on a colder day, and lower on a hotter day

b) greater on a hotter day and lower on a colder day
c) doesn't have a significant difference

213. Weight is equal to
a) volume x gravity
b) mass x acceleration
c) mass x gravity

214. Induced Drag
a) increases with an increase in speed
b) reduces with an increase in angle of attack
c) increases with increase in aircraft weight

215. Airflow over the upper surface of the wing generally
a) flows towards the root
b) flows towards the tip
c) flows straight from leading edge to trailing edge

216. with an increase in aspect ratio for a given ISA, induced drag will
a) remain constant
b) increase
c) reduce

217. With increasing altitude the angle at which a wing will stall
a) remains the same
b) reduces
c) increases

218. If the density of the air is increased, the lift will
a) increase
b) decrease
c) remain the same

219. All the factors that affect the lift produced by an aerofoil are
a) angle of attack, air density, velocity, wing area
b) angle of attack, air temperature, velocity, wing area
c) angle of attack, velocity, wing area, aerofoil shape, air density

220. A wing section suitable for high speed would be
a) thick with high camber
b) thin with high camber
c) thin with little or no camber

221. The induced drag of an aircraft
a) increases with increasing speed
b) increases if aspect ratio is increased

c) decreases with increasing speed

222. As the speed of an aircraft increases the profile drag
a) increases
b) decreases
c) decreases at first then increase

223. The stagnation point on an aerofoil is the point where
a) the suction pressure reaches a maximum
b) the boundary layer changes from laminar to turbulent
c) the airflow is brought completely to rest

224. After a disturbance in pitch, an aircraft continues to oscillate at constant amplitude. It is
a) longitudinally unstable
b) longitudinally neutrally stable
c) laterally unstable

225. On an aircraft with an all-moving tailplane nose up pitch is caused by
a) increasing tailplane incidence
b) decreasing tailplane incidence
c) up movement of the trim tab

226. The stalling of an aerofoil is affected by the
a) airspeed
b) angle of attack
c) transition speed

227. What gives the aircraft directional stability?
a) Vertical stabilizer
b) Horizontal stabilizer
c) Elevators

280. The most fuel efficient of the following types of engine is the
a) rocket
b) turbo-jet engine
c) turbo-fan engine

229. The quietest of the following types of engine is the
a) rocket
b) turbo-jet engine
c) turbo-fan engine

230. Forward motion of a glider is provided by

a) the engine
b) the weight
c) the drag

231. Profile drag consists of what drag types?
a) Form, skin friction and interference
b) Form, induced and skin friction
c) Form, induced and interference

232. An aircraft in straight and level flight is subject to
a) zero load factor
b) a load factor of 1
c) a load factor of ½

233. Aspect ratio is given by the formula
a) $\frac{\text{Mean Chord}}{\text{Span}}$
b) $\frac{\text{Span}^2}{\text{Area}}$
c) $\frac{\text{Span}^2}{\text{Mean Chord}}$

234. on a high wing aircraft in a turn
a) the up going wing loses lift which has a de-stabilizing effect
b) the down going wing gains lift causing a stabilizing effect
c) the down going wing loses lift causing a de-stabilizing effect

235. Which condition is the actual amount of water vapour in a mixture of air and water?
a) Relative humidity
b) Dew point
c) Absolute humidity

236. An aspect ratio of 8 means
a) the span is 8 times the mean chord
b) the mean chord is 8 times the span
c) the area is 8 times the span

237. The ISA
a) is taken from the equator
b) is taken from 45 degrees latitude
c) assumes a standard day

238. Which will weigh the least?
a) 98 parts of dry air and 2 parts of water vapour
b) 35 parts of dry air and 65 parts of water vapour
c) 50 parts of dry air and 50 parts of water vapour

239. A high aspect ratio wing

a) is stiffer than a low aspect ratio wing

 # b) has less induced drag than a low aspect ratio wing

c) has a higher stall angle than a low aspect ratio wing

240. The thrust-drag couple overcomes the lift-weight couple. What force must the tail of the aircraft exert to maintain the aircraft in a level attitude?

a) Down

 # b) Up

c) Sideways

241. Induced downwash

 # a) reduces the effective angle of attack of the wing

b) increases the effective angle of attack of the wing

c) has no effect on the angle of attack of the wing

242. during a turn, the stalling angle

a) increases

b) decreases

 # c) remains the same

243. Which is the ratio of the water vapour actually present in the atmosphere to the amount that would be present if the air were saturated at the prevailing temperature and pressure?

a) Absolute humidity

 # b) Relative humidity.

c) Dew point

244. a straight rectangular wing, without any twist, will

a) have greater angle of attack at the tip

b) have the same angle of attack at all points along the span

 # c) have less angle of attack at the tip

245. If gauge pressure on a standard day is 25 PSI, the absolute pressure is

a) 10.3 PSI

b) 43.8 PSI

 # c) 39.7 PSI

246. The C of G moves in flight. The most likely cause of this is

a) movement of passengers

b) movement of cargo

 # c) consumption of fuel and oils

247. The speed of sound in the atmosphere

a) varies according to the frequency of the sound

 # b) changes with a change in temperature

c) changes with a change in pressure

248. A straight rectangular wing, without any twist, will
a) stall first at the tip
b) stall first at the root
c) stall equally along the span of the wing

249. What is sea level pressure?
a) 1013.2 mb
b) 1012.3 mb
c) 1032.2 mb

250. Which atmospheric conditions will cause the true landing speed of an aircraft to be the greatest?
a) Low temperature with low humidity
b) High temperature with low humidity
c) High temperature with high humidity

251. Which condition is the actual amount of water vapour in a mixture of air and water?
a) Relative humidity
b) Dew point
c) Absolute humidity

252. When the weight of an aircraft increases, the minimum drag speed
a) decreases
b) increases
c) remains the same

253. Which statement concerning heat and/or temperature is true?
a) There is an inverse relationship between temperature and heat.
b) Temperature is a measure of the kinetic energy of the molecules of any substance
c) Temperature is a measure of the potential energy of the molecules of any substance

254. Which is the ratio of the water vapour actually present in the atmosphere to the amount that would be present if the air were saturated at the prevailing temperature and pressure?
a) Absolute humidity
b) Relative humidity
c) Dew point

255. When an aircraft experiences induced drag
a) air flows under the wing spanwise towards the tip and on top of the wing spanwise towards the root
b) air flows under the wing spanwise towards the root and on top of the wing spanwise towards the tip
c) Neither a) or b) since induced drag does not cause spanwise flow

256. What is absolute humidity?

a) The temperature to which humid air must be cooled at constant pressure to become saturated.
b) The actual amount of the water vapour in a mixture of air and water
c) The ratio of the water vapour actually present in the atmosphere to the amount that would be present if the air were saturated at the prevailing temperature and pressure

257. Which atmospheric conditions will cause the true landing speed of an aircraft to be the greatest?
a) Low temperature with low humidity
b) High temperature with low humidity
c) High temperature with high humidity

258. If all, or a significant part of a stall strip is missing on an aeroplane wing, a likely result will be
a) increased lift in the area of installation on the opposite wing at high angles of attack
b) asymmetrical aileron control at low angles of attack
c) asymmetrical aileron control at or near stall angles of attack

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259. When a leading edge slat opens, there is a gap between the slat and the wing. This is
a) to allow it to retract back into the wing
b) to allow air through to re-energize the boundary layer on top of the wing
c) to keep the area of the wing the same

260. An aeroplane wing is designed to produce lift resulting from relatively
a) positive air pressure below and above the wing's surface.
b) negative air pressure below the wing's surface and positive air pressure above the wing's surface.
c) positive air pressure below the wing's surface and negative air pressure above the wing's surface

261. Aspect ratio of a wing is defined as the ratio of the
a) wingspan to the wing root
b) square of the chord to the wingspan
c) wingspan to the mean chord

262. Which of the following is true?
a) Lift acts at right angles to the wing chord line and weight acts vertically down
b) Lift acts at right angles to the relative airflow and weight acts vertically down
c) Lift acts at right angles to the relative air flow and weight acts at right angles to the aircraft centre line

263. The temperature to which humid air must be cooled at constant pressure to become saturated is called
a) dewpoint
b) absolute humidity

c) relative humidity

264. The airflow over the upper surface of a cambered wing
a) increases in velocity and pressure
b) increases in velocity and reduces in pressure
c) reduces in velocity and increases in pressure

265. Which type of flap increases the area of the wing?
a) Plain Flap
b) Fowler Flap
c) All flaps

266. If all, or a significant part of a stall strip is missing on an aeroplane wing, a likely result will be
a) increased lift in the area of installation on the opposite wing at high angles of attack
b) asymmetrical aileron control at low angles of attack
c) asymmetrical aileron control at or near stall angles of attack

267. With increased speed in level flight
a) induced drag increases
b) profile drag increases
c) profile drag remains constant

268. Deployment of flaps will result in
a) a decrease in stall angle
b) an increase in stall angle
c) a decrease in angle of attack

269. An aeroplane wing is designed to produce lift resulting from relatively
a) positive air pressure below and above the wing's surface.
b) negative air pressure below the wing's surface and positive air pressure above the wing's surface.
c) positive air pressure below the wing's surface and negative air pressure above the wing's surface.

270. The angle of attack of an aerofoil section is the angle between the
a) chord line and the relative airflow
b) underside of the wing surface and the mean airflow
c) chord line and the centre line of the fuselage

271. A swept wing tends to stall first at the
a) root

b) tip
c) centre section

272. Krueger Flaps are normally fitted to
a) the trailing edge of the wings
b) the tips of the wings
c) the leading edge of the wings

273. Aspect ratio of a wing is defined as the ratio of the
a) wingspan to the wing root.
b) square of the chord to the wingspan.
c) wingspan to the mean chord

274. The trailing vortex on a pointed wing (taper ratio = 0) is
a) at the root
b) at the tip
c) equally all along the wing span

275. A high wing aircraft will be more
a) laterally stable than a low wing aircraft
b) longitudinally stable than a low wing aircraft
c) directionally stable than a low wing aircraft

276. A wing with a very high aspect ratio (in comparison with a low aspect ratio wing) will have
a) increased drag at high angles of attack.
b) a high stall speed.
c) poor control qualities at low airspeeds.

277. The lift curve for a delta wing is
a) more steep than that of a high aspect ratio wing
b) less steep than that of a high aspect ratio wing
c) the same as that of a high aspect ratio wing

278. after an aircraft has been disturbed from its straight and level flight, it returns to its original attitude with a small amount of decreasing oscillation. The aircraft is
a) statically stable but dynamically unstable
b) statically unstable but dynamically stable
c) statically stable and dynamically stable

279. An increase in the speed at which an aerofoil passes through the air increases lift because
a) the increased speed of the airflow creates a greater pressure differential between the upper and lower surfaces.
b) the increased speed of the airflow creates a lesser pressure differential between the upper and lower surfaces.
c) the increased velocity of the relative wind increases the angle of attack

280. A delta wing has

 # a) a higher stall angle than a straight wing
b) a lower stall angle than a straight wing
c) the same stall angle than a straight wing

281. The Lift/Drag ratio of a wing at the stalling angle is

a) of a negative value
 # b) low
c) high

282. The airflow over the upper surface of a cambered wing

a) increases in velocity and pressure
 # b) increases in velocity and reduces in pressure
c) reduces in velocity and increases in pressure

283. The speed of air over a swept wing which contributes to the lift is

 # a) less than the aircraft speed
b) more than the aircraft speed
c) the same as the aircraft speed

284. For a given angle of attack induced drag is

a) greater on a high aspect ratio wing
b) greater towards the wing root
 # c) greater on a low aspect ratio wing

285. In straight and level flight, the angle of attack of a swept wing is

a) the same as the aircraft angle to the horizontal
b) more than the aircraft angle to the horizontal
 # c) less than the aircraft angle to the horizontal

286. Induced drag

a) is never equal to the profile drag
b) is equal to the profile drag at the stalling speed
 # c) is equal to the profile drag at Vmd

287. A delta wing aircraft flying at the same speed (subsonic) and angle of attack as a swept wing aircraft of similar wing area will produce

a) the same lift
b) more lift
 # c) less lift

288. The stagnation point is

 # a) static pressure plus dynamic pressure

b) static pressure minus dynamic pressure
c) dynamic pressure only

289. On a swept wing aircraft, due to the adverse pressure gradient, the boundary layer on the upper surface of the wing tends to flow
a) directly from leading edge to trailing edge
b) towards the tip
c) towards the root

290. With increased speed in level flight
a) induced drag increases
b) profile drag increases
c) profile drag remains constant

291. If a swept wing stalls at the tips first, the aircraft will
a) pitch nose up
b) pitch nose down
c) roll

292. The thickness/chord ratio of the wing is also known as
a) aspect ratio
b) mean chord ratio
c) fineness ratio

293. Flexure of a rearward swept wing will
a) increase the lift and hence increase the flexure
b) decrease the lift and hence decrease the flexure
c) increase the lift and hence decrease the flexure

294. A High Aspect Ratio wing is a wing with
a) long span, long chord
b) long span, short chord
c) short span, long chord

295. Stall commencing at the root is preferred because
a) the ailerons become ineffective
b) it provides the pilot with a warning of complete loss of lift
c) it will cause the aircraft to pitch nose up

296. An aircraft flying in “ground effect” will produce
a) more lift than a similar aircraft outside of ground effect
b) less lift than a similar aircraft outside of ground effect
c) the same lift as a similar aircraft outside of ground effect

297. If the angle of attack of a wing is increased in flight, the

a) C of P will move forward
b) C of G will move aft
c) C of P will move aft

298. The Rams Horn Vortex on a forward swept wing will be
a) the same as a rearward swept wing
b) more than a rearward swept wing
c) less than a rearward swept wing

299. When maintaining level flight an increase in speed will
a) cause the C of P to move aft
b) cause the C of P to move forward
c) have no affect on the position of the C of P

300. For a cambered wing section the zero lift angle of attack will be
a) zero
b) 4 degrees
c) negative

301. Density changes with altitude at a rate
a) of 2kg/m^3 per 1000ft
b) which changes with altitude
c) which is constant until 11km

302. Airflow at subsonic speed is taken to be
a) compressible
b) incompressible
c) either a or b depending on altitude

303. Bernoulli's equation shows that
a) at constant velocity the kinetic energy of the air changes with a change of height
b) with a change in speed at constant height both kinetic and potential energies change
c) with a change in velocity at constant height the static pressure will change

304. If fluid flow through a venturi is said to be incompressible, the speed of the flow increases at the throat to
a) maintain a constant volume flow rate
b) allow for a reduction in static pressure
c) allow for an increase in static pressure

305. to produce lift, an aerofoil must be
a) asymmetrical
b) symmetrical
c) either a or b above

306. Lift is dependent on
a) the area of the wing, the density of the fluid medium, and the square of the velocity

b) the net area of the wing ,the density of the fluid medium and the velocity
c) the frontal area of the wing, the density of the fluid medium and the velocity

307. The maximum lift/drag ratio of a wing occurs
a) at the angle of attack where the wing develops its maximum lift
b) during take off
c) at an angle below which the wing develops max lift

308. A wing develops 10,000N of lift at 100knots. Assuming the wing remains at the same angle of attack and remains at the same altitude, how much lift will it develop at 300knots?
a) 900,000 N
b) 90,000N
c) 30,000N

309. The angle of attack is
a) related to angle of incidence
b) always kept below 15 degrees
c) not related to the angle of incidence

310. The difference between the mean camber line and the chord line of an aerofoil is
a) one is always straight and the other may be straight
b) neither are straight
c) they both may be curved

311. If the C of G is calculated after loading as within limits for take off
a) no further calculation is required
b) a further calculation is required prior to landing to allow for fuel and oil consumption
c) a further calculation is required prior to landing to allow for flap deployment

312. A stalled aerofoil has a lift/drag ratio
a) more than the lift/drag ratio prior to stall
b) zero
c) less than the lift/drag ratio prior to stall

313. At low forward speed
a) increased downwash reduces tailplane effectiveness
b) increased downwash increases tailplane effectiveness
c) excessive rudder movement may cause fin to stall

314. Helicopter rotor blades create lift by
a) creating low pressure above the blades
b) pushing the air down
c) working like a screw

315. On some modern aircraft a stall warning will automatically

a) increase thrust
b) extend outboard slats
c) cause a pitch nose down movement

316. above 65,800 ft temperature
a) remains constant up to 115,000ft
b) decreases by 1.98oC up to 115000ft
c) increases by 0.303oC up to 115000ft

317. At sea level, ISA atmospheric pressure is
a) 14.7 PSI
b) 14.7 Kpa
c) 10 Bar

318. The spanwise component of the airflow is
a) greater at higher speeds
b) less at higher speeds
c) unaffected by speed

319. A wing fence
a) increases lateral control
b) acts as a lift dumping device
c) reduces spanwise flow on a swept wing thus reducing induced drag

320. The highest lift/drag ratio is greatest at
a) low altitudes
b) the point just before the stalling angle
c) the optimum angle of attack

321. With all conditions remaining the same, if the aircraft speed is halved, by what factor is the lift reduced?
a) Half
b) By a factor of 4
c) Remains the same

322. The boundary layer over an aerofoil is
a) a layer of air close to the aerofoil that is stationary
b)a layer of air close to the aerofoil which is moving at a velocity less than free stream air
c) a layer of turbulent air close to the aerofoil which is moving at a velocity less than free stream air

323. on a swept wing aircraft, the fineness ratio of an aerofoil is
a) highest at the root
b) highest at the tip
c) equal throughout the span

324. IAS for a stall will
a) increase with altitude
b) decrease with altitude
 # c) roughly remain the same for all altitude

325. If the radius of a turn is reduced the load factor will
 # a) increase
b) decrease
c) remain the same

326. Streamlining will reduce
 # a) form drag
b) induced drag
c) skin friction drag

327. If an aircraft has a gross weight of 3000 kg and is then subjected to a total weight of 6000 kg the load factor will be
 # a) 2G
b) 3G
c) 9G

328. A constant rate of climb is determined by
a) weight
b) wind speed
 # c) excess engine power

329. Ice formed on the leading edge will cause the aircraft to
a) stall at the same stall speed and AoA
b) stall at a lower speed
 # c) stall at a higher speed

330. With an aircraft in bank, the upper wing produces more drag. To compensate
 # a) the rudder is operated
b) when bank angle is achieved then the ailerons are operated in the opposite direction to cause the opposite effect
c) angle of attack is increased

331. on a high winged aircraft in a banked turn, which of the following are true?
a) The down-going wing loses lift causing a stabilizing effect
 # b) The up-going wing loses lift causing a stabilizing effect
c) The wing dihedral causes a stabilizing effect

332. If an aircraft true airspeed is halved, its indicated airspeed is reduced by
 # a) half
b) factor of four
c) It is not reduced, it is doubled

333. If there is an increase of density, what effect would there be in aerodynamic dampening?
a) None
b) Decreased
c) Increased

334. As Mach number increases, what is the effect on boundary layer?
a) Becomes more turbulent
b) Becomes less turbulent
c) Decreases in thickness

335. When a slat is retracted it moves
a) towards the upper leading edge of the wing
b)towards the lower leading edge of the wing
c) towards the center of the leading edge of the wing

336. In a turn the up-going wing causes a
a) de-stabilizing effect due to increased AoA
b) de-stabilizing effect due to decreased AoA
c) stabilizing effect due to decreased AoA

337. The stagnation point consists of
a) dynamic and static air pressure
b) static air pressure
c) dynamic air pressure

338. During a glide the following forces act on an aircraft
a) lift, weight, thrust
b) lift, drag, weight
c) lift and weight only

339. Yawing is a rotation around
a) the normal axis obtained by the elevator
b) the lateral axis obtained by the rudder
c) the normal axis obtained by the rudder

340. If an aileron is moved downward
a) the stalling angle of that wing is increased
b) the stalling angle of that wing is decreased
c) the stalling angle is not affected but the stalling speed is decreased

341. If the wing loading of an aircraft were reduced the stalling speed would
a) increase
b) decrease
c) not be affected

342. As the angle of attack increases the centre of pressure will
a) move rearward

b) remain static
c) move forward

343. The lift on a wing is increased with
a) an increase in pressure
b) an increase in humidity
c) an increase in temperature

344. An aircraft entering a level turn will require more lift
a) only if there is an increase in speed
b) only if there is an increase in angle of attack
c) in all cases

345. Lateral stability is reduced by increasing
a) Anhedral
b) Dihedral
c) Sweepback

346. Pulling the control column and rotating to the left causes
a) elevator down, left aileron down
b) elevator up, left aileron up
c) elevator down, left aileron up

347. Azimuth stability is dependent on
a) dihedral
b) tailplane
c) keel and fin

348. If the aircraft is slipping in turn
a) the bank angle is too great
b) the bank angle is too small
c) the nose of the aircraft is too low

349. in normal flight conditions, an increase in aircraft speed
a) causes the nose of the aircraft to drop
b) causes the nose of the aircraft to lift
c) the nose remains in the same position

350. An aircraft sideslips. What helps to restore the aircraft?
a) Fin gives rolling movement
b) Dihedral causes the aircraft to roll straight and the fin increases the yaw rate
c) Tailplane

351. For an aircraft climbing at a constant IAS the Mach number will

a) increase
b) decrease
c) remain constant

352. The airflow behind a normal shockwave will
a) always be subsonic and in the same direction as the original airflow
b) always be supersonic and in the same direction as the original airflow
c) always be subsonic and deflected from the direction of the original airflow

353. Sweepback of the wings will
a) not affect lateral stability
b) increase lateral stability at high speeds only
c) increase lateral stability at all speeds

354. With the flaps lowered, the stalling speed will
a) increase
b) decrease
c) remain the same

355. When flying close to the stall speed a pilot applies left rudder the aircraft will
a) pitch nose up
b) roll to the left
c) stall the left wing

356. When an aircraft is in a bank, the upper wing produces more drag. To compensate
a) the rudder is operated
b) when bank angle is achieved then the ailerons are operated in the opposite direction to cause the opposite effect
c) angle of attack is increased (pitch up)

357. When flaps are down it will
a) increase AoA and increase slow speed stability
b) decrease AoA and decrease slow speed stability
c) the AoA remains the same on both wings