PRINCIPLES OF FLIGHT
080

1 Density:

[A] Reduces with temperature reduction.
[B] Increases with altitude increase.
[C] Reduces with altitude increase.
[D] Is unaffected by temperature change.

2 The air pressure that acts on anything immersed in it:

[A] Is greater at altitude than at sea level.
[B] Is also known as Total Pressure.
[C] Is also known as Dynamic Pressure.
[D] Is also known as Static Pressure.

3 The presence of water vapour:

[A] In the atmosphere will increase the amount of lift generated by an aircraft.
[B] In air will reduce its density.
[C] In the atmosphere will increase the power output of a piston engine.
[D] In air will increase its density.

4 When considering the changes in density of the air with altitude, which of the following four options is correct?

[A] The temperature increase with increasing altitude causes density to increase.
[B] The temperature reduction with increasing altitude causes density to increase.
[C] The reduction in pressure with increasing altitude causes density to reduce.
[D] The increase in pressure with increasing altitude causes density to reduce.

5 Assuming that the pressure at sea level is ISA, but the temperature is 10 C higher than ISA, the density will be:

[A] As per ISA.
[B] Greater than ISA.
[C] Unaffected.
[D] Less than ISA.

6 Air pressure:

[A] Increases with altitude.
[B] Is measured in Pascals per square inch.
[C] Acts only vertically downwards.
[D] Acts in all directions.

7 In straight and level powered flight the following principal forces act on an aircraft:

[A] Thrust, lift, drag, weight.
[B] Lift, drag, weight.
[C] Thrust, lift, weight.
[D] Thrust, lift, drag.

8 The unit of force is the:

[A] Newton-metre.
[B] Mass-kilogram.
[C] Joule.
[D] Newton.

9 The dynamic pressure exerted on an aircraft's frontal surface is equal to:

[A] Half the true airspeed times the density squared.
[B] Density time's speed squared.
[C] Half the density times the true airspeed squared.
[D] Half the density times the indicated airspeed squared.

10 Relative airflow is ____ and ____ the movement of the aircraft.

[A] Parallel to / in the same direction as.
[B] Parallel to / Opposite to.
[C] Perpendicular to / Opposite to.
[D] Perpendicular to / in the same direction as.

11 The symbol for dynamic pressure is:

[A] Q.
[B] R.
[C] D.
[D] P.

12 The air flow over the wing's upper surface in straight and level flight, when compared with the airflow that is unaffected by the wing, will have:

[A] A higher density.
[B] The same velocity.
[C] A reduced velocity.
[D] A higher velocity.

13 Which of the four answer options most correctly completes the sentence? Increasing speed also increases lift because:

[A] The increased velocity of the relative wind overcomes the increased drag.
[B] Lift is directly proportional to velocity.
[C] Increasing speed decreases drag.
[D] The increased speed of the air passing over an aerofoil's upper surface decreases the static pressure above the wing, thus creating a greater pressure differential across the upper and lower surface.

14 Considering the forces acting upon an aeroplane, at constant airspeed, which statement is correct?

[A] The lift force generated by the wings always acts in the opposite direction to the aircraft's weight.
[B] Thrust acts parallel to the relative airflow and is greater than drag.
[C] Weight always acts vertically downwards towards the centre of the Earth.
[D] Lift acts perpendicular to the chord line and must always be greater than weight.

15 In straight and level flight, the free stream airflow pressure, compared to that flowing under the wing, is:

[A] Equal.
[B] Equal pressure but travelling faster.
[C] Lower.
[D] Higher.

16 If the cross sectional area of an airflow is mechanically reduced:

[A] The velocity of the airflow remains constant and the kinetic energy increases.
[B] The mass flow remains constant and the static pressure increases.
[C] The mass flow remains constant and the velocity of the airflow increases.
[D] The velocity of the airflow remains constant and the mass flow increases.

17 Dynamic pressure is:

[A] The pressure change caused by heating when a moving airflow is brought completely to rest.
[B] The amount of the total pressure by which the static pressure rises at a point where a moving airflow is brought completely to rest.
[C] The pressure due to the mass of air pressing down on the air beneath.
[D] The total pressure at a point where a moving airflow is brought completely to rest.

18 When considering air:
1. Air has mass.
2. Air is not compressible.
3. Air is able to flow or change its shape when subject to even small pressures.
4. The viscosity of air is very high.
5. Moving air has kinetic energy.

The correct combination of all true statements is:

[A] 1 and 4.
[B] 1, 3 and 5.
[C] 2, 3 and 4.
[D] 1, 2, 3 and 5.

19 An aircraft rotates about:

[A] Its centre of gravity.
[B] Its main undercarriage.
[C] Its rudder.
[D] Its wings.

20 Dynamic pressure equals:

[A] Total pressure divided by static pressure.
[B] Total pressure minus static pressure.
[C] Static pressure minus total pressure.
[D] Total pressure plus static pressure.

21 If the velocity of an air mass is increased:

[A] The kinetic energy will increase, the dynamic pressure will increase and the static pressure will decrease.
[B] The dynamic pressure will decrease and the static pressure will increase.
[C] The static pressure will remain constant and the kinetic energy will increase.
[D] The mass flow will stay constant, the dynamic pressure will decrease and the static pressure will increase.

22 The boundary layer consists of:

[A] Laminar flow.
[B] Laminar and turbulent flowarea.
[C] Turbulent flow at low speeds only.
[D] Turbulent flow.

23 What must be the relationship between the forces acting on an aircraft in flight, for that aircraft to be in a state of equilibrium?

[A] Lift must equal weight, and thrust must equal drag.
[B] Lift must equal thrust, and weight must equal drag.
[C] Lift must equal drag, and thrust must equal weight.
[D] Lift must equal thrust plus drag.

24 The smooth flow of air, where each molecule follows the path of the preceding molecule, is a definition of:

[A] Laminar flow.
[B] Free stream flow.
[C] Wind.
[D] Turbulent flow.

25 In sub-sonic airflow, as air passes through a venturi, the mass flow ____ , the velocity ____ and the static pressure ____ .

[A] Remains constant / increases then decreases / decreases then increases.
[B] Decreases then increases / remains constant / increases then decreases.
[C] Decreases then increases / increases then decreases / increases then decreases.
[D] Remains constant / increases then decreases / increases then decreases.

26 A moving mass of air possesses kinetic energy. An object placed in the path of such a moving mass of air will be subject to:

[A] Static pressure and dynamic pressure.
[B] Dynamic pressure.
[C] Static Pressure.
[D] Dynamic pressure minus static pressure.

27 Dynamic pressure may be expressed by the formula:

[A] $Q = 1/3pV^2$.
[B] $Q = pV$.
[C] $Q = 2pV$.
[D] $Q = 1/2pV^2$.

28 As airspeed increases, induced drag:

[A] Decreases.
[B] Increases.
[C] Is dependant on the weight of the aircraft.
[D] Remains unchanged.

29 As indicated air speed (IAS) is reduced, in order to maintain altitude, the pilot must:

[A] Increase the angle of attack to maintain the correct lift force.
[B] Reduce the thrust.
[C] Deploy the speed brakes to increase drag.
[D] Decrease the angle of attack to reduce the drag.

30 That portion of the aircraft's total drag created by the production of lift is called:

[A] Induced drag, which is greatly affected by changes in coefficient of lift and airspeed.
[B] Induced drag, which is not affected by changes in airspeed.
[C] Parasite drag, which is inversely proportional to the square of the airspeed.
[D] Parasite drag, which is greatly affected by changes in airspeed.

31 If the indicated air speed of an aircraft is increased from 50 kts to 100 kts, parasite drag will be:

[A] Four times greater.
[B] Six times greater.
[C] One quarter as much.
[D] Two times greater.

32 An imaginary straight line running from the midpoint of the leading edge of an aerofoil to its trailing edge, is called the:

[A] Chord.
[B] Maximum camber.
[C] Aerofoil thickness.
[D] Mean camber.

33 A positively cambered aerofoil starts to produce lift at an angle of attack of approximately:

[A] 4 to 6 degrees.
[B] Minus 4 degrees.
[C] 0 degrees.
[D] 16 degrees.

34 On an aerofoil section, the force of lift acts perpendicular to, and the force of drag acts parallel to, the:

[A] Longitudinal axis.
[B] Aerofoil section upper surface.
[C] Flightpath.
[D] Chord line.

35 As airspeed increases induced drag ____, parasite drag ____ and total drag ____.

[A] Decreases / Increases / Decreases then increases.
[B] Increases / Decreases / Increases then decreases.
[C] Increases / Increases / Increases.
[D] Decreases / Decreases / Decreases.

36 If in level flight the airspeed decreases below that for maximum lift/drag, the effect will be that:

[A] Drag decreases because of lower parasite drag.
[B] Drag increases because of increased parasite drag.
[C] Drag increases because of increased induced drag.
[D] Drag decreases because of lower induced drag.

37 The angle of attack is the angle between the:

[A] Camber line and free stream flow.
[B] Chord line and the longitudinal axis of the aeroplane.
[C] Chord line and the relative airflow.
[D] Chord line and the horizontal plane.

38 The maximum value of the coefficient of lift is found at an angle of attack of approximately:

[A] 4 to 6 degrees.
[B] 0 degrees.
[C] 16 degrees.
[D] Minus 4 degrees.

39 At a constant angle of attack, a decrease in the airspeed of an aircraft will result in:

[A] An increase in lift and a decrease in drag.
[B] An increase in drag and a decrease in lift.
[C] A decrease in lift and drag.
[D] Possible increases or decreases in lift or drag, depending on the actual speed.

40 If the angle of attack and other factors remain constant, and the airspeed is doubled, lift will be:

[A] One quarter of what it was.
[B] Quadrupled.
[C] The same.
[D] Doubled.

41 The definition of lift is:

[A] The aerodynamic force which acts at 90° to the relative airflow.
[B] The aerodynamic force which acts perpendicular to the upper surface of the aerofoil.
[C] The aerodynamic force that results from the pressure differentials about an aerofoil.
[D] The aerodynamic force which acts perpendicular to the chord line of the aerofoil.

42 Which of the answer options most correctly completes the sentence? The amount of lift a wing produces is directly proportional to:

[A] The square root of the velocity of the air flowing over it.
[B] The air temperature.
[C] The dynamic pressure minus the static pressure.
[D] The air density.

43 The maximum value of the coefficient of lift is found:

[A] At the stalling angle of attack.
[B] When lift equals drag.
[C] During steep turns.
[D] At negative angles of attack.

44 At a given indicated air speed, what effect will an increase in air density have on lift and drag?

[A] Lift will increase but drag will decrease.
[B] Lift and drag will remain the same.
[C] Lift and drag will decrease.
[D] Lift and drag will increase.

45 Full flaps should be selected when:

[A] Commencing final approach.
[B] On go-around.
[C] Committed to land.
[D] Landing into a strong headwind.

46 A wing which is inclined downwards from root to tip is said to have:

[A] Washout.
[B] Taper.
[C] Anhedral.
[D] Sweep.

47 When the C of G is close to the forward limit:

[A] Longitudinal stability is reduced.
[B] Stick forces are the same as for an aft C of G.
[C] Very high stick forces are required to pitch because the aircraft is very stable.
[D] Very small forces are required on the control column to produce pitch.

48 An aeroplane which is inherently stable will:

[A] Not spin.
[B] Require less effort to control.
[C] Have a built-in tendency to return to its original state following the removal of any disturbing force.
[D] Be difficult to stall.

49 After a disturbance in pitch, an aircraft oscillates in pitch with increasing amplitude. It is:

[A] Statically and dynamically unstable.
[B] Statically and dynamically stable.
[C] Statically unstable but dynamically stable.
[D] Statically stable but dynamically unstable.

50 By design, the centre of pressure on a particular aircraft remains behind the aircraft's C of G. If the aircraft is longitudinally stable and is displaced in pitch, nose down, by turbulence:

[A] The tailplane will generate an upward force.
[B] Neither an upward nor a downward force will be generated by the tailplane, as the aircraft will already be in equilibrium.
[C] The tailplane will generate a downward force.
[D] The aircraft will maintain its nose-down attitude.

51 When an aircraft is disturbed from its established flight path by, for example, turbulence, it is said to have positive stability if it subsequently:

[A] Continues to pitch in the disturbed direction until the displacement is resisted by opposing control forces.
[B] Becomes further displaced from its original flight path.
[C] Remains on the new flight path.
[D] Re-establishes its original flight path without any input from the pilot.

52 Loading an aircraft so that the C of G exceeds the aft limits could result in:

[A] Excessive load factor in turns.
[B] High stick forces.
[C] Loss of longitudinal stability and the nose pitching up at slow speeds.
[D] Excessive upward force on the tail, and the nose pitching down.

53 Which of the following four options describes the consequence of taking off with the manufacturer's recommended take-off flap setting selected?

[A] An increase in the length of the take-off run compared to a non-flap take-off.
[B] A decrease in the length of the take-off run compared to a non-flap take-off.
[C] A greater angle of climb.
[D] Easier avoidance of obstacles at the end of a runway.

54 With the flaps lowered, the stalling speed will:

[A] Decrease.
[B] Increase.
[C] Increase, but occur at a higher angle of attack.
[D] Remain the same.

55 When an aircraft is disturbed from its trimmed attitude by, for example, turbulence, it is said to have neutral stability if it subsequently:

[A] Remains in the new attitude.
[B] Immediately re-establishes its original attitude.
[C] Oscillates about its original attitude before settling back to that original attitude.
[D] Continues to move in the disturbed direction until the displacement is resisted by opposing control forces.

56 If the centre of gravity (C of G) of an aircraft is found to be within limits for take-off:

[A] The C of G will not change during the flight.
[B] The C of G will always be within limits for landing.
[C] The flight crew will always be certain of being able to adjust the C of G during flight in order to keep it within acceptable limits for landing.
[D] The C of G limits for landing must be checked, allowing for planned fuel consumption.

57 With a forward centre of gravity, an aircraft will have:

[A] Decreased elevator effectiveness when flaring.
[B] Lighter forces for control movements.
[C] Reduced longitudinal stability.
[D] Shorter take off distances.

58 Longitudinal stability is given:

[A] The horizontal tailplane.
[B] The fin.
[C] The ailerons.
[D] The wing dihedral.

59 An aft centre of gravity will give:

[A] Increased elevator effectiveness when flaring.
[B] Longer take-off distances.
[C] Increased longitudinal stability.
[D] Heavy forces for control movements.

60 The tendency of an aircraft to develop forces which restore it to its original flight situation, when disturbed from a condition of steady flight, is known as:

[A] Controllability.
[B] Stability.
[C] Instability.
[D] Manoeuvrability.

61 Stability around the normal axis:

[A] Is given by the lateral dihedral.
[B] Is increased if the keel surface behind the C of G is increased.
[C] Depends on the longitudinal dihedral.
[D] Is greater if the wing has no sweepback.

62 The maximum gliding distance from 6.000 feet, for an aircraft in clean configuration, with a lift/drag ratio of 8:1, is approximately 8 nautical miles. If flaps are deployed:

[A] The maximum gliding distance will be unaffected.
[B] The maximum gliding distance will be less.
[C] The maximum gliding distance will increase.
[D] Lift/Drag ratio will be unaffected but will be achieved at a lower airspeed.

63 A pilot lowers the flaps while keeping the airspeed constant. In order to maintain level flight, the angle of attack:

[A] Must be increased.
[B] Must be kept constant and power required will be constant.
[C] Must be reduced.
[D] Must be kept constant but power must be increased.

64 An aircraft wing is constructed with positive dihedral in order to give:

[A] Directional stability about the normal axis.
[B] Lateral stability about the normal axis.
[C] Lateral stability about the longitudinal axis.
[D] Longitudinal stability about the lateral axis.

65 An aircraft is disturbed from its path by a gust of wind. Neutral stability is when, without pilot intervention, it:

[A] Continues to move away from the original path.
[B] Maintains the new path.
[C] Returns to its original path after overshooting.
[D] Returns to its original path without overshooting.

66 When flaps are lowered the stalling angle of attack of the wing:

[A] Increases and CLMAX increases.
[B] Decreases, but CLMAX increases.
[C] Remains the same, but CLMAX increases.
[D] Decreases, but CLMAX remains the same.

67 A high wing configuration with no dihedral, compared to a low wing configuration with no dihedral, will provide:

[A] Less lateral stability.
[B] The same degree of longitudinal stability as any other configuration because dihedral gives longitudinal stability.
[C] Greater longitudinal stability.
[D] Greater lateral stability.

68 An aircraft is disturbed from its flight path by a gust of wind. If it tends to return to its original flight path without pilot intervention, the aircraft is said to possess:

[A] Instability.
[B] Neutral Dynamic Stability.
[C] Negative Dynamic Stability.
[D] Positive Dynamic Stability.

69 Wing leading-edge devices such as slots, designed to allow flight at higher angles of attack, do so by:

[A] Decreasing lift and hence induced drag.
[B] Changing the shape and hence the lift characteristics of the wing.
[C] Providing an extra lifting surface and hence increase the lift available.
[D] Re-energising the airflow over the top of the wing, delaying separation.

70 The part that gives most of the directional stability for an aircraft is:

[A] The rudder trim tab.
[B] The rudder.
[C] The vertical fin.
[D] The horizontal tailplane.

71 If a landing is to be made without flaps the landing speed must be:

[A] Increased.
[B] The same as for a landing with flaps but with a steeper approach.
[C] The same as for a landing with flaps.
[D] Reduced.

72 The maximum speed at which the aircraft can be flown with flaps extended is called:

[A] VFE
[B] VYSE
[C] VNO
[D] VNE

73 Yawing is movement around the ____ axis.

[A] Normal.
[B] Longitudinal.
[C] Lateral.
[D] Horizontal.

74 The lateral axis of an aircraft is a line which:

[A] Passes through the centre of pressure, at right angles to the direction of the airflow.
[B] Passes through the centre of gravity, parallel to a line through the wing tips.
[C] Passes through the quarter-chord point of the wing root at right angles to the longitudinal axis.
[D] Passes through the wing tips.

75 Lowering the flaps during a landing approach:

[A] Increases the angle of descent without increasing the airspeed.
[B] Decreases the angle of descent without increasing power.
[C] Eliminates floating.
[D] Permits approaches at a higher indicated airspeed.

76 During a manoeuvre, the ailerons are deflected and returned to neutral when the aircraft has attained a small angle of bank. If the aircraft then returns to a wings-level attitude without further control movement, it is:

[A] Statically stable.
[B] Statically stable but dynamically neutral.
[C] Statically and dynamically stable.
[D] Neutrally stable.

77 The purpose of an anti-balance tab is to:

[A] Ensure that the pilot's physical control load increases with increase of control surface deflection.
[B] Reduce the load required to move the controls at all speeds.
[C] Trim the aircraft.
[D] Reduce the load required to move the controls at high speeds only.

78 The phenomenon of flutter is described as:

[A] Rapid movement of the airframe caused by vibration from the engines.
[B] Rapid oscillatory motion involving only rotation of the control surfaces, associated with the shock waves produced around the control surfaces.
[C] Oscillatory motion of part or parts of the aircraft relative to the remainder of the structure.
[D] Reversal of the ailerons caused by wing torsional flexibility.

79 An aileron could be balanced aerodynamically by:

[A] Having springs in the control circuit to assist movement.
[B] Making the up aileron move through a larger angle than the down aileron.
[C] Having the control hinge set back behind the control surface leading edge.
[D] Attaching a weight to the control surface forward of the hinge.

80 When the control column is pushed forward, a balance tab on the elevator:

[A] Will move down relative to the control surface.
[B] Will only move if the trim wheel is operated.
[C] Moves to the neutral position.
[D] Will move up relative to the control surface.

81 On an aircraft with a simple trim tab incorporated into a control surface, when the surface is moved, the tab remains in the same position relative to the:

[A] Relative airflow.
[B] Aircraft horizontal plane.
[C] Control surface.
[D] Boundary layer airflow.

82 Which flying control surface(s) give(s) control about the aircraft's normal axis?

[A] The ailerons.
[B] The elevator.
[C] The flaps.
[D] The rudder.

83 The primary and secondary effects of applying the left rudder alone are:

[A] Right yaw and left roll.
[B] Right yaw and right roll.
[C] Left yaw and right roll.
[D] Left yaw and left roll.

84 When displacing the ailerons from the neutral position:

[A] Induced drag remains the same; the up-going aileron causes a smaller increase in profile drag than the down-going aileron.
[B] The down-going aileron causes an increase in induced drag.
[C] The up-going aileron causes an increase in induced drag.
[D] Both cause an increase in induced drag.

85 An aircraft's rudder is fitted with a balance tab. Movement of the rudder bar to the right, to yaw the aircraft to the right, will move the balance tab to the:

[A] Left and the rudder to the right.
[B] Left and the rudder to the left.
[C] Right and the rudder to the right.
[D] Right and the rudder to the left.

86 An aircraft has a tendency to fly right wing low with hands off. It is trimmed with a tab the left aileron. The trim tab will:

[A] Move down causing the left aileron to move up and right aileron to move down.
[B] Move up causing the left wing to move down, ailerons remain neutral.
[C] Move up, causing the left aileron to move up and right aileron to move down.
[D] Move down, causing the left aileron to move up, right aileron remains neutral.

87 Ailerons give:

[A] Lateral control about the lateral axis.
[B] Lateral control about the longitudinal axis.
[C] Longitudinal control about the lateral axis.
[D] Directional control about the normal axis.

88 Following re-trimming for straight and level flight, in an aircraft with a C of G near its forward limit, and an elevator fitted with a conventional trim-tab:

[A] Nose-up pitch authority will be reduced.
[B] Longitudinal stability will be reduced.
[C] Nose-down pitch authority will be reduced.
[D] Tailplane down-load will be reduced.

89 Controls are mass balanced in order to:

[A] Return the control surface to neutral when the controls are released.
[B] Eliminate control flutter.
[C] Provide equal control forces on all three controls.
[D] Aerodynamically assist the pilot in moving the controls.

90 The purpose of a spring-bias trim system is:

[A] To reduce to zero the effort required by the pilot to counter stick force, after making a control movement.
[B] To increase the feel in the control system.
[C] To compensate for temperature changes in cable tension.
[D] To maintain a constant tension in the trim tab system.

91 A control surface may have a mass balance fitted to it, in order to:

[A] Keep the control surface level.
[B] Help prevent a rapid and uncontrolled oscillation which is called "flutter".
[C] Lighten the forces needed to control the surface.
[D] Provide the pilot with "feel".

92 A control surface may be mass balanced by:

[A] Fitting an anti-balance tab.
[B] Fitting a balance tab.
[C] Attaching weight acting aft of the hinge line.
[D] Attaching a weight acting forward of the hinge line.

93 Fixed trim tabs on ailerons:

[A] Can be adjusted on the ground after a test flight to make turning easier.
[B] Can be adjusted during flight.
[C] Can be adjusted on the ground after a test flight to make wings-level flight easier.
[D] Should never be adjusted.

94 Which flying control surface(s) give(s) longitudinal control?

[A] The ailerons.
[B] The rudder.
[C] The elevator.
[D] The flaps.

95 The purpose of a trim tab is:

[A] To assist the pilot in initiating movement of the controls.
[B] To zero the load on the pilots controls in the flight attitude required.
[C] To increase the effectiveness of the controls.
[D] To provide feel to the controls at high speed.

96 If the control column is moved forward and to the left:

[A] The left aileron moves up, right aileron moves down, elevator moves up.
[B] The left aileron moves down, right aileron moves up, elevator moves up.
[C] The left aileron moves up, right aileron moves down, elevator moves down.
[D] The left aileron moves down, right aileron moves up, elevator moves down.

97 If the control column is moved to the right, a balance tab on the left aileron should:

[A] Move up relative to the aileron.
[B] Move to the neutral position.
[C] Move down relative to the aileron.
[D] Not move unless the aileron trim wheel is turned.

98 Differential Ailerons' are a design feature that helps to counteract:

[A] Adverse roll.
[B] Positive aircraft stability.
[C] Stability about the longitudinal axis.
[D] Adverse yaw.

99 If the angle of attack is increased above the stalling angle:

[A] Lift will increase and drag will decrease.
[B] Lift will decrease and drag will increase.
[C] Lift and drag will both decrease.
[D] Lift and drag will both increase.

100 If the Angle of Attack is increased beyond the Critical Angle of Attack, the wing will stall:

[A] Unless the pitch attitude is on or below the natural horizon.
[B] In which case, the control column should be pulled-back immediately.
[C] Regardless of airspeed or pitch attitude.
[D] Unless the airspeed is greater than the normal stall speed.

101 An aeroplane wing stalls when:

[A] The critical angle of attack is exceeded.
[B] It is subjected to unusually high 'G'forces.
[C] The indicated airspeed is too low.
[D] The laminar airflow becomes turbulent.

102 The stalling speed of an aircraft in straight and level flight is 60 kt, IAS. What is its stalling speed in a level 60° banked turn?

[A] 120 kt.
[B] 43 kt.
[C] 60 kt.
[D] 85 kt.

103 When an aircraft is in a steady climb, the aerodynamic lift is ____ the weight.

[A] Greater than.
[B] Less than.
[C] Balanced by.
[D] Equal to.

104 A typical stalling angle of attack for an aircraft wing is:

[A] 16°
[B] 30°
[C] 4°
[D] 45°

105 The maximum angle of climb of an aeroplane is determined by:

[A] Excess airspeed.
[B] Wind speed.
[C] Excess engine thrust.
[D] The aircraft weight.

106 The angle of attack at which an aeroplane stalls:

[A] Is a function of speed and density altitude.
[B] Will remain constant, regardless of gross weight.
[C] Is dependent upon the speed of the airflow over the wing.
[D] Will be smaller flying downwind than when flying upwind.

107 When the aircraft is in a spin, the direction of spin is most reliably found by reference to which of the following indications?

[A] Direction indicator.
[B] Turn needle.
[C] Slip indicator.
[D] Artificial horizon.

108 The reason for washout being designed into an aircraft wing is to:

[A] Cause the inboard section of the wing to stall first.
[B] Decrease the effectiveness of the ailerons.
[C] Increase the effectiveness of the flaps.
[D] Cause the outboard section of the wing to stall first.

109 The maximum allowable airspeed with flaps extended (VFE) is lower than cruising speed because:

[A] At speeds higher than VFE the aerodynamic forces would overload the flap and wing structures.
[B] Flaps will stall if they are deployed at too high an airspeed.
[C] Flaps are used only when preparing to land.
[D] Too much drag is induced.

110 The basic stalling speed of an aeroplane is 80 knots. In a level turn with 45° angle bank, the stalling speed is:

[A] 113 kt.
[B] 95 kt.
[C] 86 kt.
[D] 33 kt.

111 At the stall, the Centre of Pressure moving backwards will cause the nose to ____, and the decreased lift will cause the aircraft to ____.

[A] Drop / lose height.
[B] Yaw / reduce speed.
[C] Drop / reduce speed.
[D] Rise / sink.

112 VNE is:

[A] The maximum airspeed at which manoeuvres approaching the stall may be carried out.
[B] The maximum speed, above which flaps should not be extended.
[C] The airspeed which must not be exceeded except in a dive.
[D] The maximum airspeed at which the aircraft may be flown.

113 In a climb at a steady speed, the thrust is:

[A] Greater than the aerodynamic drag.
[B] Less than the aerodynamic drag.
[C] Equal to the weight component along the flight path.
[D] Equal to the aerodynamic drag.

114 What is the significance of the speed known as VNO?

[A] It signifies the upper limit of the normal operating speed range.
[B] It is the speed beyond which structural failure of the airframe will occur.
[C] It is the maximum speed at which abrupt movements of the controls will result in a stall, before the aircraft's positive load limit is exceeded.
[D] It signifies the airspeed which must never be exceeded.

115 The stalling speed of an aircraft, assuming weight to be constant, is a function of the:

[A] Square of the weight.
[B] Square root of the Load Factor.
[C] Indicated airspeed.
[D] Inverse of the Load Factor.

116 The angle of climb is proportional to:

[A] The amount by which the thrust exceeds the drag.
[B] The angle of attack of the wing.
[C] The amount by which the thrust exceeds the weight.
[D] The amount by which the lift exceeds the weight.

117 If an aircraft is flown at its design manoeuvring speed VA:

[A] It is possible to subject the aircraft to a load greater than its limit load during high 'g' manoeuvres.
[B] It is only possible to subject the aircraft to a load greater than its limit load during violent increases in incidence, i.e. when using excessive stick force to pull-out of a dive.
[C] It is not possible to exceed the positive limit load with movements.
[D] It must be immediately slowed down if turbulence is encountered.

118 If the aircraft weight is increased, without change of C of G position, the stalling angle attack will:

[A] Decrease.
[B] Remain the same.
[C] Remain the same. The position of the C of G does not affect the stall speed.
[D] Increase.

119 The critical angle of attack on the wing polar diagram is marked as: (See LAPL/PPL 080-02)

[A] 1.
[B] 5.
[C] 6.
[D] 4.

120 The angle of attack for a minimum drag on the wing polar diagram is marked as: (See LAPL/PPL 080-02)

[A] 5.
[B] 3.
[C] 7.
[D] 4.

121 Which wing shape has the greatest induced drag?

[A] Taper.
[B] Rectangular.
[C] Double taper.
[D] Elliptical.

122 If the velocity of an airstream is doubled the drag coefficient will:

[A] Increase 4-times.
[B] Double.
[C] Increase 6-times.
[D] Not change.

123 Approximately for what percent will the stall speed increase if wing loading increases by 15%?

[A] 7%.
[B] 20%.
[C] 0%.
[D] 15%.

124 What is the approximate percentage increase of a minimum speed if an aircraft mass is increased for 20%?

[A] 120%.
[B] 10%.
[C] 20%.
[D] 0%.

125 If an airplane weights 3.000 pounds, what approximate weight would the airplane structure be required to support during a 20° banked turn while maintaining altitude? (See LAPL/PPL 080-01)

[A] 3.350 lbs.
[B] 3.180 lbs.
[C] 4.000 lbs.
[D] 3.000 lbs.

126 If an airplane weights 4.600 pounds, what approximate weight would the airplane structure be required to support during a 50° banked turn while maintaining altitude? (See LAPL/PPL 080-01)

[A] 8.180 lbs.
[B] 5.400 lbs.
[C] 7.160 lbs.
[D] 9.200 lbs.

127 What is the maximum allowed bank angle when flying an aircraft with limiting load factor of +2,5 G? (See LAPL/PPL 080-01)

[A] 60°.
[B] 55°.
[C] 50°.
[D] 66°.

128 What is the maximum allowed bank angle when flying an aircraft with limiting load factor of +3,8 G? (See LAPL/PPL 080-01)

[A] 75°.
[B] 67°.
[C] 53°.
[D] 70°.

129 What is the load factor in a 60° banked level turn? (See LAPL/PPL 080-01)

[A] 1 G.
[B] 0.5 G.
[C] 2.0 G.
[D] 1.5 G.

130 The airspeed at which a pilot will not yet overstress the airframe of an aircraft by momentarily up-deflecting the elevator is:

[A] VFE.
[B] VB.
[C] VS.
[D] VA.

131 Collective changes thrust vector's:

[A] Longitudinal stability
[B] Direction
[C] Length
[D] Does not have an effect on thrust vector

132 Helicopter pilot affects on helicopter's freedoms:

[A] Only with cyclic
[B] Only with twist grip
[C] With all controls
[D] Can not affect at all

133 Retreating blade stall occurs most likely:

[A] With high cruising speed
[B] At hover in strong down wind
[C] With low cruising speed
[D] At high descent speed (autorotation)

134 When cruising speed increases the flapping of advancing blade:

[A] Increases
[B] Does not change
[C] Decreases
[D] Advancing blade does not flap

135 The main purpose for adjusting the blade tip track is:

[A] To increase static longitudinal stability
[B] To decrease power required
[C] To enhance the controllability of a helicopter
[D] To minimize 1/n vibration

136 Helicopter is dynamically stable if:

[A] It tends to return to trimmed flight state after being deviated from it
[B] It returns to balance aperiodically or with decreasing oscillation
[C] If helicopter is trimmed well it maintains its flight state all the time
[D] The blade tip tracks are done well

137 Undesired effects caused by the Coriolis force can be reduced by:

[A] Feathering hinge
[B] Adjust the rotor to be as stiff as possible
[C] Drag hinge
[D] Flapping hinge

138 The greatest glading distance for helicopter at autorotation is achieved with combination:

[A] Low speed-low rpm
[B] High speed-high rpm
[C] Low speed-high rpm
[D] High speed-small rpm

139 To which direction the swash plate normally moves when collective is pulled up

[A] Down
[B] Right
[C] Up
[D] Left

140 The angle between profile chord and rotating plane is called:

[A] Blade angle
[B] Angle of attack
[C] Relative angle
[D] Angle of refractive

141 Banking the rotor disk plane of a helicopter to desired direction of movement is possible by:

[A] Utilizing collective
[B] Utilizing control stick in banking
[C] Utilizing the Coriolis force
[D] Utilizing collective and pedals

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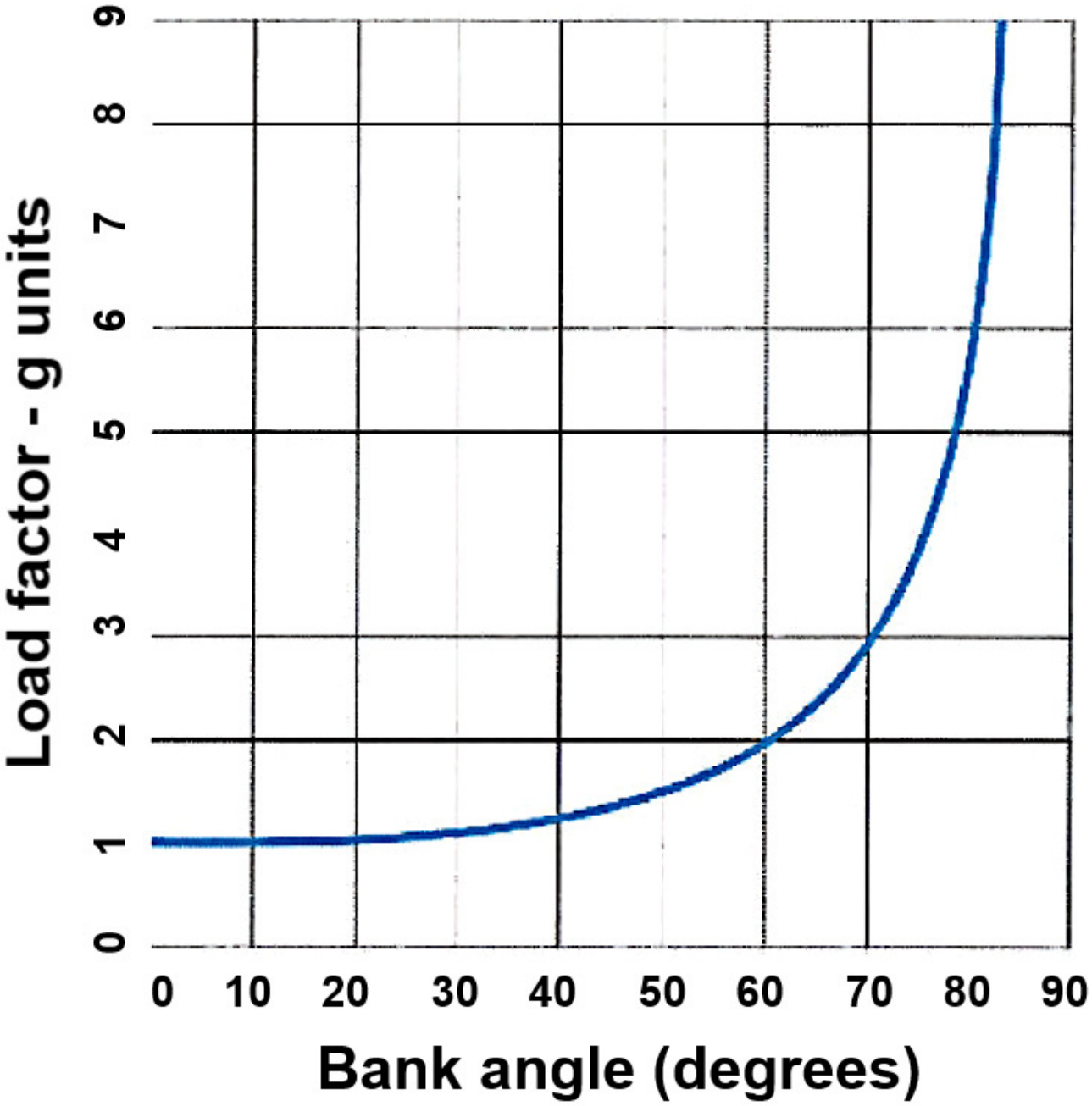

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