Prin - Bài trắc nghiệm Tiếng Anh - PRINCIPLE OF FLIGHT

Câu 1 **PRINCIPLE OF FLIGHT**

A. 1) incorrect, 2) incorrect.

B. 1) correct, 2) correct.

C. 1) incorrect, 2) correct.

D. 1) correct, 2) incorrect.

Câu 2 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The dynamic pressure in the throat is the same as in the undisturbed airflow. 2) The total pressure in the throat is higher than in the undisturbed airflow.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 3 **During the retraction of the flaps at a constant angle of attack the aeroplane starts to: (Note: all other factors of importance being constant)**

A. bank.

B. sink suddenly.

C. climb.

D. yaw.

Câu 4 **The stall speed in a 60° banked turn increases by the following factor:**

A. 1.41

B. 1.07

C. 1.30

D. 2.00

Câu 5 **When an aeroplane enters ground effect:**

A. the effective angle of attack is decreased.

B. the induced angle of attack is increased.

C. the lift is increased and the drag is decreased.

D. drag and lift are both reduced.

Câu 6 **If the aspect ratio of a wing increases whilst all other relevant factors remain constant, the critical angle of attack will:**

A. remain constant only for a wing consisting of symmetrical aerofoils.

B. increase.

C. remain constant

D. decrease.

Câu 7 **Asymmetric propeller blade effect is mainly induced by:**

A. large angles of yaw.

B. large angles of climb.

C. the inclination of the propeller axis to the relative airflow.

D. high speed.

Câu 8 **Which of these statements about the gust load factor on an aeroplane are correct or incorrect? 1) When the wing area decreases, the gust load factor decreases. 2) When the EAS decreases, the gust load factor decreases.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is correct.

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 9 **Regarding the lift formula, if airspeed doubles, lift will:**

A. be 4 times greater.

B. also double.

C. not change.

D. halve.

Câu 10 **In a steady, level, co-ordinated turn:**

A. the radius of turn depends only upon load factor.

B. the rate of turn depends upon the TAS and angle of bank.

C. the radius of turn depends upon the weight and load factor.

D. the rate of turn depends upon the weight, TAS and angle of bank.

Câu 11 **Which statement is correct? 1) Propeller gyroscopic effect occurs during flight at constant aeroplane attitude. 2) Propeller gyroscopic effect is most noticeable during low speed flight at low propeller RPM.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect.

Câu 12 **The point where a laminar boundary layer becomes turbulent is called:**

A. the separation point.

B. the transition point.

C. the critical point.

D. the deflection point.

Câu 13 **The sonic boom of an aeroplane flying at supersonic speed is created by:**

A. aerodynamic heating.

B. shock waves around the aeroplane.

C. the centre of pressure, which is moving aft on the aerofoil.

D. the expansion flow behind the aeroplane.

Câu 14 **"Tuck under" is caused by _ (i) movement of the centre of pressure (CP) of the wing and _ (ii) change of the downwash angle at the location of the stabilizer.**

A. i) forward; ii) increasing.

B. i) forward; ii) decreasing.

C. i) aft; ii) increasing.

D. i) aft; ii) decreasing.

Câu 15 **Which of these statements about weight or mass is correct?**

A. Mass = weight x volume.

B. In the 51 system the unit of measurement for weight is the kilogram.

C. The mass of an object is independent of the acceleration due to gravity.

D. The weight of an object is independent of the acceleration due to gravity.

Câu 16 **A laminar boundary layer is a layer, in which:**

A. the vortices are weak.

B. the velocity is constant.

C. the temperature varies constantly.

D. no velocity components exist normal to the surface.

Câu 17 **The centre of gravity moving aft will:**

A. increase the elevator up effectiveness.

B. decrease the elevator up effectiveness.

C. not affect the elevator up or down effectiveness.

D. increase or decrease the elevator up effectiveness, depending on wing location.

Câu 18 **An aeroplane in straight and level flight at 100 kts is subjected to a sudden disturbance in speed. Assuming the angle of attack remains constant initially and the load factor reaches a value of 1.44:**

A. The speed will have decreased by 10 kts.

B. The speed will have increased by 10 kts.

C. The speed will have increased by 20 kts.

D. The speed will have decreased by 20 kts.

Câu 19 **Assuming zero wind, an aeroplane in a straight steady glide will achieve the minimum glide angle at:**

A. the highest altitude.

B. the lowest mass.

C. (CL/CD)MAX

D. (CL/CD)MIN

Câu 20 **Which of the following statements is correct? 1) When the critical engine fails during take-off the speed VMCL can be limiting. 2) The speed VMCL is always limited by maximum rudder deflection.**

A. 1) is incorrect, 2) is incorrect

B. 1) is correct, 2) is correct.

C. 1) is correct, 2) is incorrect.

D. 1) is incorrect, 2) is correct.

Câu 21 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The dynamic pressure in the throat is lower than in the undisturbed airflow.**

Câu 22 **The total pressure in the throat is lower than in the undisturbed airflow.**

A. 1) is correct, 2) is correct

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is incorrect

D. 1) is incorrect, 2) is correct

Câu 23 **What is the approximate value of the lift of an aeroplane at a gross weight of 50 000 N, in a horizontal coordinated 45° banked turn?**

A. 50 000 N

B. 60 000 N

C. 70 000 N

D. 80 000 N

Câu 24 **Which statement about propeller icing is correct? 1) Propeller icing increases blade element drag and reduces blade element lift. 2) Propeller icing reduces propeller efficiency.**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 25 **What happens if CG moves behind the aft limit?**

A. Stick forces become excessive.

B. Lateral stability will be decreased.

C. Insufficient manoeuvre stability.

D. Longitudinal stability increases.

Câu 26 **One method to compensate adverse yaw is a:**

A. differential aileron.

B. balance tab.

C. anti balance tab.

D. balance panel.

Câu 27 **If the maximum pull force acceptable is 50 lbs and the design limit load factor of the aircraft is 6g. what stick force/g must be achieved to permit the aircraft to be manoeuvred to its design load factor limit?**

A. 10 lbs/g.

B. 8.33 lbs/g.

C. 6 lbs/g.

D. 5 lbs/g.

Câu 28 **Which of these statements concerning propellers is correct?**

A. The blade angle of a feathered propeller is approximately 0 degrees.

B. The blade angle of a feathered propeller is approximately 90 degrees.

C. A windmilling propeller causes less drag than a feathered propeller.

D. An unfeathered propeller causes less drag than a feathered propeller.

Câu 29 **Induced drag is the result of:**

A. propeller slipstream over the wing.

B. boundary layer separation on the aft portion of the wing.

C. aerodynamic interaction between aeroplane parts.

D. downwash generated by tip vortices.

Câu 30 **Which statement about propeller noise is correct? 1) Propeller noise decreases when the blade tip speed increases. 2) For a given engine and propeller blade shape, an increase in the number of propeller blades allows for a reduction in propeller noise.**

A. 1) is incorrect, 2) is correct.

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is correct.

D. 1) is correct, 2) is incorrect.

Câu 31 **With increasing altitude and constant IAS the static lateral stability (i) and the dynamic lateral/directional stability (ii) of an aeroplane with swept back wing will:**

A. i) increase; ii) increase.

B. i) increase; ii) decrease.

C. i) decrease; ii) decrease.

D. i) decrease; ii) increase.

Câu 32 **Which of these statements about wing sweepback are correct or incorrect? 1) Decreasing wing sweepback decreases MCRIT. 2) Decreasing wing sweepback increases the drag divergence Mach number.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 33 **The total drag of a three dimensional wing consists of:**

A. pressure drag, friction drag and parasite drag.

B. induced drag and interference drag.

C. induced drag and parasite drag.

D. parasite drag and pressure drag.

Câu 34 **In a steep turn to the left, when using flight spoilers for roll assistance and at the same time for reducing the airspeed:**

A. the right aileron will ascend, the left one will descend, the right spoiler will extend and the left one will retract.

B. the right aileron will descend, the left one will ascend, the right spoiler will extend and the left one will retract.

C. the right aileron will descend the left one will ascend the right spoiler will retract and the left one will extend.

D. the right aileron will ascend, the left one will descend, the right spoiler will retract and the left one will extend.

Câu 35 **In a single engine aircraft with a clockwise rotating propeller (seen from behind), a left yaw is generated due to:**

A. the torque effect.

B. the slipstream, striking the fin on the left side.

C. higher lift on the right wing.

D. higher helix angle.

Câu 36 **In supersonic flight, all disturbances produced by an aeroplane are:**

A. in front of the aeroplane.

B. very weak and negligible.

C. in between a conical area, depending on the Mach number.

D. outside the conical area depending on the Mach number.

Câu 37 **The resistance, or skin friction, due to the viscosity of the air as it passes along the surface of the wing is pan of the:**

A. induced drag.

B. form drag.

C. parasite drag.

D. interference drag.

Câu 38 **Which of these statements about induced drag are correct or incorrect? 1) Induced drag decreases as angle of attack increases. 2) At constant load factor, induced drag increases with increasing aeroplane mass.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 39 **Assuming no flow separation, which of these statements about the flow around an aerofoil as the angle of attack increases are correct or incorrect? 1) The stagnation point moves up. 2) The point of lowest static pressure moves forward.**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is incorrect, 2) is incorrect.

Câu 40 **With a L/D ratio of 9:1 and flying at 12000 ft the glide range in still air would be approximately:**

A. 15 NM

B. 20 NM

C. 14 NM

D. 18 NM

Câu 41 **Which statement, about the effects on drag of fitting external tip tanks to the wings of an aeroplane, is correct? 1) Parasite drag increases. 2) Induced drag decreases.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is correct.

Câu 42 **Which of these statements about the gust load factor on an aeroplane are correct or incorrect? 1) When the mass increases, the gust load factor decreases. 2) When the altitude decreases, the gust load factor decreases.**

A. 1) is incorrect, 2) is incorrect

B. 1) is incorrect, 2) is correct

C. 1) is correct, 2) is correct

D. 1) is correct, 2) is incorrect

Câu 43 **Which of these statements concerning flight in turbulence is correct?**

A. When encountering turbulence during flight, the speed should be adjusted to the design speed for maximum gust intensity VB.

B. Above VB the aeroplane can never be overstressed by a gust.

C. The load factor in turbulence may fluctuate above and below 1 and can even become negative.

D. In severe turbulence. speed should be reduced to approximately 1.2 VS.

Câu 44 **Left rudder pedal input will cause a:**

A. left yaw about the vertical axis and left roll about the longitudinal axis.

B. right yaw about the vertical axis and right roll about the longitudinal axis.

C. left yaw about the vertical axis and right roll about the longitudinal axis.

D. right yaw about the vertical axis and left roll about the longitudinal axis.

Câu 45 **Which of these statements are correct or incorrect regarding a sideslip, with the relative airflow coming from the right, on an aeroplane that exhibits both directional and lateral stability? 1) The initial tendency of the nose of the aeroplane is to move to the right. 2) The initial tendency of the left wing is to move down.**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect.

Câu 46 **For a fixed-pitch propeller in flight at a given TAS, the blade angle of attack will:**

A. remain constant if RPM increases.

B. increase if RPM decreases.

C. decrease if RPM decreases.

D. remain constant if RPM decreases.

Câu 47 **MMO can be exceeded in a climb at a constant IAS because:**

A. maintaining a constant IAS requires an increase in TAS.

B. as altitude increases the local speed of sound increases.

C. at reduced density the Mach meter will under read.

D. position error increases.

Câu 48 **What changes in aircraft control must be made to maintain altitude while the airspeed is being decreased?**

A. Increase the angle of attack to compensate for the decreasing lift

B. Increase the angle of attack to produce more lift than drag.

C. Decrease the angle of attack to compensate for the increasing drag.

D. Maintain a constant angle of attack until the desired airspeed is reached, then increase the angle of attack.

Câu 49 **Which statement, about an aeroplane leaving ground effect at constant angle of attack, is correct?**

Câu 50 **The lift coefficient CL increases.**

Câu 51 **The induced drag coefficient CDi decreases.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is correct.

Câu 52 **Which aeroplane behaviour will be corrected by a yaw damper?**

A. Spiral dive.

B. Tuck under.

C. Dutch roll.

D. Buffeting.

Câu 53 **Which of these statements about flutter are correct or incorrect? 1) Wing mounted engines extending ahead of the wing contribute to wing flutter suppression. 2) Excessive free play or backlash increases the speed at which control surface flutter occurs.**

A. 1) is incorrect, 2) is correct.

B. 1) is incorrect, 2) is incorrect.

C. 1) is correct, 2) is incorrect.

D. 1) is correct, 2) is correct.

Câu 54 **Assuming zero wind, an aeroplane with a L/D ratio of 25:1 would cover a distance of**

A. 4 NM

B. 2.5 NM

C. 25 NM

D. 40 NM

Câu 55 **Which statement about an aeroplane entering ground effect is correct? 1) The downwash angle remains constant. 2) The induced angle of attack decreases.**

A. 1) is incorrect, 2) is incorrect

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is correct, 2) is correct.

Câu 56 **Ignoring downwash effects on the tailplane, extension of Fowler-type flaps, will produce:**

A. a nose-down pitching moment.

B. no pitching moment.

C. a nose-up pitching moment.

D. a force which reduces drag.

Câu 57 **When Fowler type trailing edge flaps are extended at a constant angle of attack, the following changes will occur:**

A. CL increases and CD remains constant.

B. CL increases and the centre of pressure moves forward.

C. CL and CD increase.

D. CD decreases and the centre of pressure moves aft.

Câu 58 **Given: Aeroplane mass: 50 000 kg;Lift/Drag ratio: 12;Thrust per engine: 21 000 N;Assumed g: 10 m/s²; For a straight, steady, wings level climb of a four-engine aeroplane, the all engines climb gradient will be:**

A. 8.5%

B. 4.3%

C. 7.7%

D. 6.0%

Câu 59 **On an asymmetrical, single curve aerofoil, in subsonic airflow, at low angle of attack, when the angle of attack is increased, the centre of pressure will (assume a conventional transport aeroplane):**

A. move forward.

B. move aft.

C. remain matching the airfoil aerodynamic centre.

D. remain unaffected.

Câu 60 **Which of these variables are required to calculate drag using the drag formula?**

A. Total pressure and wing area only.

B. Frontal wing area, density and wing loading.

C. Angle of attack, aspect ratio and dynamic pressure.

D. Dynamic pressure, drag coefficient and wing area.

Câu 61 **Assuming ISA conditions and no compressibility effects, if an aeroplane maintains straight and level flight at the same angle of attack at two different altitudes, the:**

A. IAS at both altitudes is the same.

B. TAS at both altitudes is the same.

C. IAS is higher at the higher altitude.

D. TAS is lower at the higher altitude.

Câu 62 **To hold a given sideslip angle and airspeed. increased geometric dihedral would:**

A. reduce the stick force to zero.

B. have no effect on stick force.

C. decrease the stick force.

D. increase the stick force.

Câu 63 **A jet transport aeroplane is in a straight climb at a constant IAS and constant weight. The operational limit that may be exceeded is:**

A. VNE

B. VMO

C. MMO

D. VD

Câu 64 **Which of these statements about an oblique shock wave are correct or incorrect? 1) The static temperature behind an oblique shock wave is lower than in front of it. 2) The static pressure behind an oblique shock wave is lower than in front of it.**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 65 **The bow wave will first appear at:**

A. a free stream Mach number just below M = 1.

B. a free stream Mach number exactly equal to 1.

C. a free stream Mach number just above M = 1.

D. the critical Mach number.

Câu 66 **In general jet transport aeroplanes with power assisted flight controls are fitted with an adjustable stabiliser instead of trim tabs on the elevator. This is because:**

A. the pilot does not feel the stick forces at all.

B. an adjustable stabiliser is a more powerful means to generate the tail loads required for these kind of aeroplanes.

C. mechanical adjustment of trim tabs creates too many problems.

D. trim tab deflection increases VMO.

Câu 67 **Which of these statements about flutter are correct or incorrect? 1) Aero-elastic coupling does not affect flutter characteristics. 2) Occurrence of flutter is independent of IAS.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is incorrect

C. 1) is incorrect, 2) is correct.

D. 1) is correct, 2) is correct.

Câu 68 **Which of these statements about an oblique shock wave are correct or incorrect? 1) The Mach number behind an oblique shock wave is higher than in front of it. 2) The total pressure behind an oblique shock wave is lower than in front of it.**

A. 1) is correct, 2) is correct

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is incorrect

D. 1) is incorrect, 2) is correct

Câu 69 **A forward CG shift**

A. decreases static longitudinal stability.

B. has no influence on static longitudinal stability.

C. increases longitudinal manoeuvrability.

D. decreases longitudinal manoeuvrability.

Câu 70 **In twin engine aeroplanes with propellers turning clockwise as seen from behind:**

A. the left engine produces a higher yaw moment if the right engine fails than vice versa.

B. the left engine is the critical engine.

C. the minimum control speed is determined by the failure of the right engine.

D. the right engine is the critical engine.

Câu 71 **Given: Aeroplane mass: 50 000 kg; Lift/Drag ratio: 12; Thrust per engine: 28 000 N; Assumedg: 10 m/s²; For a straight, steady, wings level climb of a three-engine aeroplane, the one-engineinoperative climb; gradient will be:**

A. 8.0%

B. 9.7%

C. 2.9%

D. 8.5%

Câu 72 **Directional stability is the stability around the:**

A. longitudinal axis.

B. lateral axis.

C. normal axis.

D. pitch axis.

Câu 73 **The critical angle of attack for the flaps down configuration, compared to flaps up is:**

A. greater.

B. smaller.

C. unchanged.

D. smaller or greater, depending on CG position.

Câu 74 **When an aircraft is flying at speeds above Mach 1, pressure disturbances from the aircraft will affect only the flow:**

A. within the Mach cone.

B. in front of the Mach cone.

C. in front of the oblique shockwave.

D. in front ofthe normal shockwave.

Câu 75 **Which of these statements about induced drag are correct or incorrect? 1) Induced drag increases as angle of attack decreases. 2) At constant load factor, induced drag increases with decreasing aeroplane mass.**

A. 1) is incorrect, 2) is incorrect

B. 1) is correct, 2) is correct.

C. 1) is correct, 2) is incorrect.

D. 1) is incorrect, 2) is correct.

Câu 76 **The contribution of the wing to the static longitudinal stability of an aeroplane:**

A. is always negative.

B. depends on CG location relative to the wing aerodynamic centre.

C. depends on the wing location relative to the fuselage.

D. is positive if the wing has a positively cambered aerofoil section and the aerodynamic centre is ahead of the CG.

Câu 77 **What is the most effective flap system?**

A. Single slotted flap

B. Split flap.

C. Plain flap.

D. Fowler flap.

Câu 78 **Which of these statements about the gust load factor on an aeroplane are correct or incorrect? 1) When the wing area increases, the gust load factor decreases. 2) When the EAS increases, the gust load factor decreases.**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect.

Câu 79 **The relationship between induced drag and the aspect ratio is:**

A. a decrease in the aspect ratio increases the induced drag.

B. there is no relationship.

C. induced drag = 1.3 aspect ratio value.

D. an increase in the aspect ratio increases the induced drag.

Câu 80 **Given an aeroplane with a propeller turning anti-clockwise as seen from behind, the torque effect will tend to:**

A. pitch the aeroplane nose down.

B. pitch the aeroplane nose up.

C. roll the aeroplane to the right.

D. roll the aeroplane to the left.

Câu 81 **Which statement, about an aeroplane entering ground effect at constant angle of attack, is correct? 1) The lift coefficient CL decreases. 2) The induced drag coefficient CDi increases.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect.

Câu 82 **Which of the following (i) aerofoils and (ii) angles of attack will produce the lowest MCRIT values?**

A. i) thick; ii) small

B. i) thick; ii) large

C. i) thin; ii) large

D. i) thin; ii) small

Câu 83 **Comparing the differences between a horizontal trimmable stabiliser and an elevator trim tab, which of these statements are correct or incorrect? 1) An elevator trim tab is more suitable to cope with the large trim changes generated by the high lift devices on most jet transport aeroplanes. 2) A trim tab runaway causes less control difficulty.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect.

Câu 84 **Speed brakes are devices used on large transport category aircraft:**

A. for speed reduction during landing.

B. and are an old version of ami-block system.

C. to increase drag in order to maintain a steeper gradient of descent

D. used at high speeds for turning when a yaw damper is not installed.

Câu 85 **Which statement about a propeller is correct? 1) Asymmetric blade effect increases when engine power is increased. 2) Asymmetric blade effect is independent of the angle between the propeller axis and the airflow through the propeller disc.**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is incorrect

C. 1) is incorrect, 2) is correct.

D. 1) is correct, 2) is incorrect.

Câu 86 **If the propeller pitch of a windmilling propeller is increased during a glide at constant IAS the propeller drag in the direction of flight will:**

A. decrease and the rate of descent will decrease.

B. increase and the rate of descent will decrease.

C. decrease and the rate of descent will increase.

D. increase and the rate of descent will increase.

Câu 87 **One advantage of a movable-stabiliser system compared with an elevator trim system is that:**

A. the systems complexity is reduced.

B. the struccure weighs less.

C. it leads to greater stability in flight.

D. it is a more powerful means of trimming.

Câu 88 **Which statement about stick force per G is correct?**

A. The stick force per G can only be corrected by means of elearonic devices (stability augmentation) in case of an unacceptable value.

B. The stick force per G increases, when centre of gravity is moved aft.

C. The stick force per G must have both an upper and lower limit in order to assure acceptable control characteristics.

D. If the slope of the force line becomes negative, generally speaking this is not a problem for control of an aeroplane.

Câu 89 **Dihedral of the wing is:**

A. the angle between the 0.25 chord line of the wing and the vertical axis.

B. the angle between the 0.25 chord line of the wing and the horizon.

C. the angle between the 0.25 chord line of the wing and the lateral axis.

D. the angle between the leading edge of the wing and the lateral axis.

Câu 90 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The dynamic pressure in the throat is higher than in the undisturbed airflow.**

Câu 91 **The total pressure in the throat is lower than in the undisturbed airflow.**

A. 1) is incorrect, 2) is incorrect

B. 1) is correct, 2) is incorrect.

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is correct.

Câu 92 **If TAS is kept constant, to maintain straight and level flight with reduced air density the angle of attack of an aircraft's wings must be:**

A. increased.

B. decreased.

C. unaltered.

D. increased to the critical angle of attack.

Câu 93 **An aeroplane is performing a co-ordinated level turn with a constant bank angle. If the airspeed is increased the rate of turn will _ (i) and the load factor will _ (ii)**

A. i) decrease; ii) decrease.

B. i) decrease; ii) not change.

C. i) increase; ii) increase.

D. i) increase; ii) not change.

Câu 94 **How does positive camber of an aerofoil affect static longitudinal stability?**

A. Negatively, because the lift vector rotates forward at increasing angle of attack.

B. Positively, because the centre of pressure shifts rearward at increasing angle of attack.

C. No effect, because camber of the aerofoil produces a constant pitch down moment coefficient, independent of angle of attack.

D. Positively, because the lift vector rotates backward at increasing angle of attack.

Câu 95 **A statically stable aeroplane:**

A. is never dynamically stable.

B. is always dynamically stable.

C. can show positive. neutral or negative dynamic longitudinal stability.

D. will never show positive dynamic longitudinal stability. but always neutral dynamic longitudinal stability.

Câu 96 **At MCRIT, a shockwave will appear first:**

A. at the leading edge.

B. near to the point of maximum wing thickness.

C. at the trailing edge.

D. on the underside of the wing

Câu 97 **Which statement is correct? 1) The angle of attack of a positively cambered aerofoil has a negative value when the lift coefficient equals zero. 2) There is a nose down pitching moment about a positively cambered aerofoil when the lift coefficient equals zero.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 98 **Comparing the differences between a horizontal trimmable stabiliser and an elevator trim tab, which statement is correct? 1) A stabiliser trim is less suitable for jet transport aeroplanes because of their large speed range. 2) A trim tab is a more powerful means of trimming.**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is incorrect.

D. 1) is incorrect, 2) is correct.

Câu 99 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The dynamic pressure in the throat is lower than in the undisturbed airflow. 2) The total pressure in the throat is higher than in the undisturbed airflow.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is correct.

Câu 100 **Which of these statements about stall speed is correct?**

A. Decreasing sweepback increases stall speed.

B. Decreasing sweepback decreases stall speed.

C. Decreasing wing anhedral decreases stall speed.

D. Increasing wing anhedral decreases stall speed.

Câu 101 **Which of these statements about the gust load factor on an aeroplane are correct or incorrect? 1) When the slope of the lift versus angle of attack curve decreases, the gust load factor increases. 2) When the wing loading decreases. the gust load factor increases.**

A. 1) is correct, 2) is incorrect

B. 1) is incorrect, 2) is correct

C. 1) is correct, 2) is correct

D. 1) is incorrect, 2) is incorrect

Câu 102 **A rectangular wing, compared to other wing planforms, has a tendency to stall:**

A. first at the leading edge, with progression outward toward the wing root and tip.

B. first at the Wingtip, with the stall progression toward the wing root.

C. first at the wing root, with the stall progression towards the wing tip.

D. first at the semi-span centre, giving good aerodynamic stall warning.

Câu 103 **During a short period oscillation, the altitude:**

A. varies significantly, whereas during a phugoid it remains approximately constant.

B. varies significantly, as it does during a phugoid.

C. remains approximately constant, whereas during a phugoid it varies significantly.

D. remains approximately constant, as it does during a phugoid.

Câu 104 **When the CG Is close to the forward limit:**

A. the stalling speed is reduced.

B. the longitudinal stability is reduced.

C. very small forces are required on ttte control column to produce pitch.

D. very high stick forces are required in pitch because the aircraft is very stable

Câu 105 **Propeller slip is the difference between the:**

A. geometric pitch and the blade angle.

B. geometric pitch and the effective pitch.

C. plane of rotation and the aircraft's forward velocity.

D. RPM of the engine and the RPM of the propeller.

Câu 106 **The speed for minimum glide angle occurs at an angle of attack that corresponds to (assume zero thrust):**

A. $(CL/CD^2)MAX$

B. CLMAX

C. (CL/CD)MAX

D. $(CL^3/CD^2)MAX$

Câu 107 **Which of the following statements about a constant speed propeller is correct?**

A. The blade angle increases with increasing aeroplane speed.

B. The propeller system keeps the aeroplane speed constant.

C. The RPM decreases with increasing aeroplane speed.

D. The selected RPM is kept constant by the manifold pressure.

Câu 108 **The lift coefficient CL versus angle of attack curve of a positively cambered aerofoil section intersects the horizontal axis of the graph:**

A. to the left of the origin.

B. at the origin.

C. nowhere.

D. to the right of the origin.

Câu 109 **Which of the following statements concerning control is correct?**

A. In general the maximum downward elevator deflection is larger than upward.

B. On some aeroplanes, the servo tab also serves as a trim tab.

C. Hydraulically powered control surfaces do not need mass balancing.

D. In a differential aileron control system the control surfaces have a larger upward than downward maximum deflection.

Câu 110 **Propeller blade twist is the:**

A. varying of the helix angle from the root to the tip of a propeller blade.

B. angle between the relative airflow and the propeller blade's angle of attack.

C. angle between the blade angle and the direction of the flight of the aeroplane.

D. varying of the blade angle from the root to the tip of a propeller blade.

Câu 111 **Which of these statements about the strength of wing tip vortices are correct or incorrect? 1) Assuming no flow separation, the strength of wing tip vortices increases as the angle of attack decreases. 2) The strength of wing tip vortices increases as the aspect ratio increases.**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is correct.

C. 1) is correct, 2) is incorrect.

D. 1) is incorrect, 2) is incorrect

Câu 112 **Which moments or motions interact in a Dutch roll?**

A. Rolling and yawing.

B. Pitching and yawing.

C. Pitching and rolling.

D. Pitching and adverse yaw.

Câu 113 **The parameters that can be read from the "parabolic polar" curve of an aeroplane are the:**

A. The aspect. rario of the wing and the induced drag coefficient.

B. The minimum rare of descent and the induced drag.

C. The induced drag and the parasite drag.

D. The minimum glide angle and the parasite drag coefficient.

Câu 114 **One disadvantage of wing sweep back is:**

A. that the critical Mach number is significantly lower.

B. a severe pitch down moment when the centre of pressure shifts forward.

C. the tendency of the wing root section to stall prior to the wingtip section.

D. the tendency of the wingtip section to stall prior to the wing root section.

Câu 115 **An aeroplane has static directional stability if, when in a sideslip with the relative airflow coming from the left, initially the:**

A. right wing tends to go down.

B. nose of the aeroplane tends to yaw right.

C. nose of the aeroplane tends to yaw left.

D. nose of the aeroplane does not move.

Câu 116 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The dynamic pressure in the undisturbed airflow is lower than in the throat. 2) The total pressure in the undisturbed airflow is higher than in the throat.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is correct.

C. 1) is correct, 2) is incorrect.

D. 1) is incorrect, 2) is incorrect

Câu 117 **An aeroplane flying at 200 kts in straight and level flight is subjected to a disturbance that suddenly decreases the speed by 80 kts. Assuming the angle of attack remains constant, the load factor will initially:**

A. decrease to 0.36.

B. decrease to 0.50.

C. decrease to 0.60.

D. remain unchanged, since the angle of attack does not change.

Câu 118 **Which of these statements about wing sweepback are correct or incorrect? 1) Increasing wing sweepback increases MCRIT. 2) Increasing wing sweepback increases the drag divergence Mach number.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect.

Câu 119 **When flaps are deployed at constant angle of attack the lift coefficient will:**

A. remain the same.

B. decrease.

C. increase.

D. vary as the square of IAS.

Câu 120 **Which statement is correct about a spring tab?**

A. At high IAS it behaves like a fixed extension of the elevator.

B. Its main purpose is to increase stick force per G.

C. At high IAS it behaves like a servo tab.

D. At low IAS it behaves like a servo tab.

Câu 121 **During a climb at a constant IAS, the Mach number will:**

A. remain constant.

B. decrease initially and increase subsequently.

C. increase.

D. increase initially and remain constant subsequently.

Câu 122 **As fuel is consumed during a level flight cruise at high level:**

A. the angle of attack must be increased.

B. the stalling speed will increase.

C. the centre of pressure will move forward.

D. induced drag will decrease.

Câu 123 **To cover the greatest distance when gliding, the gliding speed must be:**

A. near to the stalling speed.

B. as high as possible within V limits.

C. minimum control speed.

D. the one that gives the lowest total drag.

Câu 124 **Which statement about an aeroplane entering ground effect is correct? 1) The downwash angle increases. 2) The induced angle of attack increases.**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is incorrect.

D. 1) is incorrect, 2) is correct.

Câu 125 **An in-flight move of the CG of an aircraft further aft will:**

A. Increase the angle of attack.

B. reduce the longitudinal stability.

C. increase the longitudinal stability.

D. have no effect on the longitudinal stability.

Câu 126 **Assuming ISA conditions and a climb above the tropopause at constant Mach number and aeroplane mass, the:**

A. TAS increases.

B. IAS decreases.

C. Lift coefficient decreases.

D. Lift coefficient remains constant.

Câu 127 **The forces of lift and drag on an aerofoil are, respectively, normal and parallel to the:**

A. relative wind/airflow.

B. chord line.

C. longitudinal axis.

D. horizon.

Câu 128 **A "slat" on a wing is:**

A. A leading edge flap.

B. A split flap along the leading edge of the wing.

C. A leading edge device that causes some of the high energy air to flow over the upper surface of the wing.

D. Another expression for a Fowler flap.

Câu 129 **The aerodynamic centre of a wing is the point relative to which:**

A. the boundary layer changes from laminar to turbulent.

B. assuming no flow separation. the pitching moment coefficient does not change with varying angle of attack.

C. the velocity of the relative airflow is reduced to zero.

D. the aeroplane becomes longitudinally unstable when the CG is moved beyond it in an aft direction.

Câu 130 **The effect of Mach trim on stick forces for power operated controls:**

A. Is to maintain the required stick force gradient.

B. Is to decrease the stick force gradient to ensure the pilot can manoeuvre the aircraft adequately when flying at a high transonic Mach number.

C. Is to decrease the stick force gradient to prevent the possibility of high speed stall.

D. A Mach trim system is not required If an aircraft has power operated controls.

Câu 131 **Aileron reversal may be caused by:**

A. the wing twisting and increasing incidence when the aileron is lowered.

B. the wing twisting and reducing incidence when the aileron is lowered.

C. the aileron being pushed in the reverse direction by aileron drag.

D. the wing twisting and reducing incidence when the aileron is raised.

Câu 132 **At constant EAS, what is the effect on aerodynamic damping as height increases?**

A. Damping in all axes is reduced.

B. Damping in pitch manoeuvres only is reduced.

C. Damping in roll is increased.

D. Damping in all axes is increased.

Câu 133 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The dynamic pressure in the undisturbed airflow is lower than in the throat. 2) The total pressure in the undisturbed airflow and in the throat is the same.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is incorrect

C. 1) is incorrect, 2) is correct.

D. 1) is correct, 2) is correct.

Câu 134 **VMCA is the minimum speed at which directional control can be maintained when,**

A. 1, 2, 4

B. 2, 3, 5

C. 3, 4, 5

D. 1, 2

Câu 135 **Just above the critical Mach number the first evidence of a shock wave will appear at the:**

A. upper side of the wing.

B. lower side of the wing.

C. leading edge of the wing.

D. trailing edge of the wing.

Câu 136 **Which statement is correct regarding the gyroscopic effect of a clockwise rotating**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is incorrect.

C. 1) is correct, 2) is incorrect.

D. 1) is incorrect, 2) is correct.

Câu 137 **Flutter of control surfaces is:**

A. divergent oscillatory motion of a control surface caused by the interaction of aerodynamic, inertia and friction forces.

B. a divergent oscillatory motion of a control surface caused by the interaction of aerodynamic forces, inertia forces and the stiffness of the structure.

C. aileron reversal.

D. the accelerated stall of a wing.

Câu 138 **Given: Aeroplane mass: 50 000 kg; Lift/Drag ratio: 12; Thrust per engine: 60 000 N;**

A. 3.7%

B. 15.7%

C. 14%

D. 11 .7%

Câu 139 **Vortex generators on the upper side of the wing:**

A. increase critical Mach number.

B. increase wave drag.

C. decrease wave drag.

D. decrease critical Mach number.

Câu 140 **As angle of arrack is increased on a conventional low speed aerofoil at low subsonic speeds, flow separation normally starts on the:**

A. upper surface near the leading edge.

B. upper surface near the trailing edge.

C. lower surface near the leading edge.

D. lower surface near the trailing edge.

Câu 141 **If angle of attack is increased beyond the critical angle of attack, the lift coefficient _ and the stagnation point moves _ .**

A. decreases; rearward

B. increases; rearward

C. decreases; forward

D. increases; forward

Câu 142 **Assuming standard atmospheric conditions, in order to generate the same amount of lift as altitude is increased, an aeroplane must be flown at:**

A. a higher TAS for any given angle of attack.

B. the same TAS regardless of angle of attack.

C. a lower TAS and a lower angle of attack.

D. a lower TAS for any given angle of attack.

Câu 143 **The lift coefficient CL versus angle of attack curve of a negatively cambered aerofoil section intersects the vertical axis of the graph:**

A. below the origin.

B. above the origin.

C. nowhere.

D. at the origin.

Câu 144 **For a given elevator deflection, aeroplane longitudinal manoeuvrability decreases when:**

A. the CG moves aft.

B. flaps are retracted at constant IAS.

C. the CG moves forward.

D. IAS increases.

Câu 145 **Which of these statements about an oblique shock wave are correct or incorrect? 1) The Mach number behind an oblique shock wave is lower than in front of it. 2) The total pressure behind an oblique shock wave is lower than in front of it.**

A. 1) is incorrect, 2) is incorrect

B. 1) is correct, 2) is correct.

C. 1) is incorrect, 2) is correct.

D. 1) is correct, 2) is incorrect.

Câu 146 **Given: Aeroplane mass: 50 000 kg; Lift/Drag ratio: 12; Thrust per engine: 20 000 N;**

A. 4.3%

B. 7.7%

C. 60%

D. 8.5%

Câu 147 **Stall speed (IAS) varies with:**

A. altitude (below approximately 10 000 ft)

B. weight.

C. density.

D. temperature.

Câu 148 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The static pressure in the throat is higher than in the undisturbed airflow. 2) The speed of the airflow in the throat is the same as in the undisturbed airflow.**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 149 **Two identical aeroplanes A and B, with the same mass, are flying steady level coordinated 20° bank turns. If the TAS of A is 130 kts and the TAS of B is 200 kts:**

A. the turn radius of A is greater than that of B.

B. the load factor of A is greater than that of B.

C. the rate of turn of A is greater than that of B.

D. the lift coefficient of A is less than that of B.

Câu 150 **Wing loading is the ratio of: lift to wing weight wing area to wing weight. lift to aircraft weight aircraft weight to wing area.**

Câu 151 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The static pressure in the throat is lower than in the undisturbed airflow. 2) The speed of the airflow in the throat is the same as in the undisturbed airflow.**

A. 1) is correct, 2) is correct

B. 1) is incorrect, 2) is correct

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect

Câu 152 **What is the effect on an aeroplane's characteristics of extending Fowler flaps to their fully extended position?**

A. CD remains constant for a given angle of attack.

B. wing area and camber increase.

C. wing area remains constant but camber increases.

D. CLMAX occurs at a higher angle of attack.

Câu 153 **Which of these statements about the supersonic speed range is correct?**

A. The airflow everywhere around the aeroplane is supersonic.

B. The supersonic speed range starts at a Mach number below M = 1 and extends to Mach numbers above M = 1.

C. The airflow around the aeroplane is transonic.

D. The supersonic speed range starts at M = 1 and ends at MCRIT.

Câu 154 **Which statement is correct?**

A. During a phugoid altitude varies significantly, but during a short period oscillation it remains approximately constant

B. During both a phugoid and a short period oscillation altitude remains approximately constant.

C. During both a phugoid and a short period oscillation altitude varies significantly.

D. During a phugoid attitude remains approximately constant, but during a short period oscillation it varies significantly.

Câu 155 **If the increased downwash at the tail plane due to lowering (extending) trailing edge flaps is considered in isolation:**

A. a nose up pitching moment will be generated.

B. a nose down pitching moment will be generated.

C. the direction of the pitch change will depend on the initial direction of the tall load.

D. tall plane angle of attack will be decreased, causing a nose down pitching moment.

Câu 156 **Which statement is correct? 1) A stick pusher activates at a higher angle of attack than a stick shaker. 2) A stick pusher prevents the pilot from increasing the angle of attack further.**

A. 1) is correct, 2) is correct

B. 1) is correct, 2) is incorrect

C. 1) is incorrect, 2) is correct

D. 1) is incorrect, 2) is incorrect

Câu 157 **Which of the following statements about static lateral and directional stability is correct?**

A. The effects of static lateral and static directional stability are completely independent of each other because they take place about different axis.

B. An aeroplane with an excessive static directional stability in relation to its static lateral stability, will be prone to spiral dive (spiral instability).

C. An aeroplane with an excessive static directional stability in relation to its static lateral stability, will be prone to Dutch roll.

D. Static directional stability can be increased by installing more powerful engines.

Câu 158 **Which of the following wing planforms produces the lowest induced drag? (assume zero wing twist)**

A. Rectangular.

B. Elliptical.

C. Tapered.

D. Circular.

Câu 159 **An engine failure can result in a windmilling (i) propeller and a non-rotating (ii) propeller. Which statement about propeller drag is correct?**

A. ii) is larger than i).

B. i) is equal to ii).

C. i) is larger than ii).

D. Impossible to say which one is larger.

Câu 160 **What is the limit load factor of a large transport aeroplane?**

A. 6 g

B. 4.4 g

C. 2.5 g

D. 3.75 g

Câu 161 **Flutter sensitivity of an aeroplane wing is reduced by:**

A. a high speed (IAS)

B. locating the engine ahead of the torsional axis of the wing.

C. empty tanks near the wing tip.

D. a low torsion stiffness in relation to the bending stiffness.

Câu 162 **When comparing the properties of laminar and turbulent boundary layers, which of the following statements is correct?**

A. Separation point will occur earlier in the turbulent layer.

B. Friction drag will be equal in both types of layers.

C. Friction drag is lower in the turbulent layer.

D. Friction drag is lower in the laminar layer.

Câu 163 **Upon extension of a wing spoiler, if the angle of attack remains constant:**

A. both CL and CD are increased.

B. CD is increased and CL is decreased.

C. CL is decreased, while CD remains unaffected.

D. CD is increased, while CL remains unaffected.

Câu 164 **For a given aeroplane which two main variables determine the value of VMCG?**

A. Airport elevation and temperature.

B. Engine thrust and rudder deflection.

C. Air density and runway length.

D. Engine thrust and gear position.

Câu 165 **The total pressure: (note: rho = density)**

A. can be measured in a small hole in a surface, parallel to the local stream.

B. is the static pressure plus the dynamic pressure.

C. is the static pressure minus the dynamic pressure.

D. is ½ rho V^2 .

Câu 166 **Which part of the aeroplane has the largest effect on induced drag?**

A. Wing root junction.

B. Engine cowling.

C. Wingtip.

D. Landing gear.

Câu 167 **A transonic Mach number is a Mach number:**

A. between the buffet onset Mach number and the Mach number corresponding to total supersonic flow.

B. at which only supersonic local speeds occur.

C. in the range between MCRIT and MMO

D. which both subsonic and supersonic local speeds occur.

Câu 168 **On an aircraft with an all -moving tail plane. backward movement of the control wheel in flight causes:**

A. an increase in tail plane incidence and a nose up pitch.

B. an upward movement of the trimming tab and a nose up pitch.

C. an increase in tail plane incidence and a nose down pitch.

D. a decrease in tail plane incidence and a nose up pitch.

Câu 169 **Which statement is correct about the gust load on an aeroplane (IAS and all other factors of importance remaining constant)? 1) When the mass decreases, the gust load factor increases. 2) When the altitude increases, the gust load factor increases.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect.

Câu 170 **Which of these statements about flutter are correct or incorrect? 1) Aero-elastic coupling does not affect flutter characteristics. 2) The risk of flutter increases as IAS increases.**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is correct

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is incorrect

Câu 171 **The main purpose of a boundary-layer fence on a swept wing is to:**

A. improve the lift coefficient of the trailing edge flaps.

B. improve the high speed handling characteristics.

C. improve the low speed handling characteristics.

D. increase the critical Mach number.

Câu 172 **When the speed over an aerofoil section increases from subsonic to supersonic, its aerodynamic centre:**

A. moves from approximately 25% to about 50% of the chord.

B. moves aft by approximately 10% of the chord.

C. does not move.

D. moves slightly forward.

Câu 173 **Aileron flutter can be caused by:**

A. aileron reversal.

B. cyclic deformations generated by aerodynamic, inertial and elastic loads on the wing.

C. continuous deformations in one direction generated by bending and twisting of the wing.

D. the elastic centre of the wing section coinciding with the centre of gravity of that wing section.

Câu 174 **If density is kept constant, the dynamic pressure:**

A. increases proportionally with velocity.

B. increases proportionally with static pressure.

C. changes inversely with the square of the velocity.

D. increases proportionally with the square of the velocity.

Câu 175 **Which of these statements about "tuck under" are correct or incorrect? 1) A contributing factor to "tuck under" is a forward movement of the centre of pressure of the wing. 2) A contributing factor to "tuck under" is a reduction in the downwash angle at the location of the horizontal stabilizer.**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is incorrect, 2) is incorrect.

Câu 176 **The stick force per g of a heavy transport aeroplane is 300 N/g. What stick force is required, if the aeroplane in clean configuration is pulled to the limit manoeuvring load factor from a trimmed horizontal straight and steady flight?**

A. 450 N

B. 750 N

C. 1125 N

D. 825 N

Câu 177 **Compared to a straight wing of the same airfoil section a wing with a 30° sweep-back should theoretically have an MCRIT _ (i) times the MCRIT of the straight wing. However, in practice the swept wing will gain _ (ii) that increase.**

A. i) 1.154, ii) half

B. i) 1.414, ii) twice

C. i) sine 30, ii) half

D. i) cosine 30, ii) twice

Câu 178 **A swept wing compared to the same wing without sweep will provide:**

A. the same lift at a given angle of attack and a lower CL MAX·

B. the same lift at a given angle of attack and a higher CL MAX·

C. less lift at a given angle of attack.

D. more lift at a given angle of attack.

Câu 179 **The axes of an aircraft by definition must all pass through the:**

A. flight desk.

B. aircraft datum.

C. centre of pressure.

D. centre of gravity.

Câu 180 **The lift coefficient CL versus angle of attack curve of a negatively cambered aerofoil section intersects the horizontal axis of the graph:**

A. to the right of the origin.

B. at the origin.

C. to the left of the origin.

D. nowhere.

Câu 181 **The lift coefficient (CL) of an aeroplane in steady horizontal flight is 0.42. An increase in angle of attack of 1 degree increases CL by 0.1. A vertical up gust instantly changes the angle of attack by 3°. The load factor will be:**

A. 1.71

B. 1.49

C. 2.49

D. 0.74

Câu 182 **A line connecting the leading and trailing edge midway between the upper and lower surface of an aerofoil. This definition is applicable for:**

A. the Mean Aerodynamic Chord line.

B. the chord line.

C. the camber line.

D. the upper camber line.

Câu 183 **If the stall speed of an aeroplane is 60 kts, at what speed will the aeroplane stall if the load factor is 2?**

A. 120 kts.

B. 66 kts.

C. 72 kts.

D. 85 kts.

Câu 184 **Which is one of the disadvantages of excessive increasing of the number of propeller blades (beyond a certain number)?**

A. Decreased propeller efficiency.

B. Increased noise.

C. Less power can be absorbed by the propeller.

D. Higher tip-speed.

Câu 185 **Assuming no flow separation, which of these statements about the flow around an aerofoil as the angle of attack decreases are correct or incorrect? 1) The stagnation point moves down. 2) The point of lowest static pressure moves aft.**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is incorrect

D. 1) is incorrect, 2) is correct.

Câu 186 **An aeroplane is performing a co-ordinated level turn with a constant 30° bank angle. If the airspeed is increased the rate of turn will _ (i) and the radius of turn will _ (ii).**

A. i) increase; ii) decrease.

B. i) decrease; ii) increase.

C. i) increase; ii) increase.

D. i) decrease; ii) decrease.

Câu 187 **The manoeuvrability of an aeroplane is best when the:**

A. CG is on the aft CG limit.

B. speed is low.

C. CG position is on the forward CG limit.

D. flaps are down.

Câu 188 **An increase in geometric dihedral in a steady sideslip condition at constant speed would:**

A. decrease the required lateral control force.

B. increase the required lateral control force.

C. decrease the stick force per g.

D. not affect the required lateral control force.

Câu 189 **The regime of flight from the critical Mach number up to approximately M = 1.3 is called the:**

A. hypersonic range.

B. supersonic range.

C. transonic range.

D. subsonic range.

Câu 190 **Which of these statements about a trimmable horizontal stabilizer is correct?**

A. A trimmed aeroplane with an aft CG requires the stabiliser leading edge to be higher than in the case of a forward CG in the same condition.

B. A trimmed aeroplane with an aft CG requires the stabilizer leading edge to be lower than in the case of a forward CG in the same condition.

C. Because cake-off speeds do not vary with CG position, the need for stabilizer adjustment is dependent on flap position only.

D. At the aft CG limit, stabilizer trim is adjusted fully nose up to obtain maximum elevator authority at rotation during take-off.

Câu 191 **As the centre of gravity is changed, recovery from a stall becomes progressively:**

A. more difficult as the centre of gravity moves aft.

B. more difficult as the centre of gravity moves forward.

C. less difficult as the centre of gravity moves aft.

D. is unaffected by centre of gravity position. only by weight.

Câu 192 **The point, where the aerodynamic lift acts on a wing is:**

A. the CG location.

B. the centre of pressure.

C. the point of maximum thickness of the wing.

D. the suction point of the wing.

Câu 193 **An aeroplane flying at 200 kts in straight and level flight is subjected to a disturbance that suddenly decreases the speed by 40 kt. Assuming the angle of attack remains constant, the load factor will initially:**

A. decrease to 0.60.

B. decrease to 0.64.

C. decrease to 0.80.

D. remain unchanged, since the angle of attack does not change.

Câu 194 **Which of these statements about the gust load factor on an aeroplane are correct or incorrect? 1) When the mass increases, the gust load factor increases. 2) When the altitude increases, the gust load factor increases.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is correct.

C. 1) is incorrect, 2) is incorrect.

D. 1) is correct, 2) is correct.

Câu 195 **When the blades of a propeller are in the feathered position:**

A. the wind milling RPM is the maximum.

B. the propeller produces an optimal windmilling RPM.

C. the drag of the propeller is then minimal.

D. the RPM is then just sufficient to lubricate the engine.

Câu 196 **In order to fly a rate one turn at a higher airspeed, the bank angle must be:**

A. decreased and the turn radius will increase.

B. increased and the turn radius will decrease.

C. increased and the turn radius will increase.

D. decreased and the turn radius will decrease.

Câu 197 **Which statement is correct regarding the gyroscopic effect of a clockwise rotating**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is incorrect.

D. 1) is incorrect, 2) is correct.

Câu 198 **The application of the area rule on aeroplane design will decrease the:**

A. wave drag.

B. skin friction drag.

C. induced drag.

D. form drag.

Câu 199 **Assuming no compressibility effects, induced drag at constant IAS is affected by:**

A. engine thrust.

B. aeroplane mass.

C. aeroplane wing location.

D. angle between wing chord and fuselage centre line.

Câu 200 **What is the highest speed possible without supersonic flow over the wing?**

A. Initial Mach buffet speed.

B. M = 1.

C. Tuck under speed.

D. Critical Mach number.

Câu 201 **Increasing the number of propeller blades will:**

A. decrease the torque in the propeller shaft at maximum power.

B. increase the propeller efficiency.

C. increase the noise level at maximum power.

D. increase the maximum absorption of power.

Câu 202 **Assuming ISA conditions and a descent above the tropopause at constant Mach number and aeroplane mass, the:**

A. IAS decreases.

B. TAS remains constant

C. lift coefficient increases.

D. lift coefficient remains constant.

Câu 203 **Comparing the differences between a horizontal trimmable stabiliser and an elevator trim tab, which of these statements are correct or incorrect? 1) A stabiliser trim is more suitable to cope with the large trim changes generated by the high lift devices on most jet transport aeroplanes. 2) A stabiliser trim runaway causes less control difficulty.**

A. 1) is correct, 2) is incorrect.

B. 1) is correct, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is incorrect, 2) is correct.

Câu 204 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The dynamic pressure in the undisturbed airflow is higher than in the throat. 2) The total pressure in the undisturbed airflow is higher than in the throat.**

A. 1) is correct. 2) is incorrect.

B. 1) is incorrect, 2) is incorrect

C. 1) is incorrect, 2) is correct.

D. 1) is correct, 2) is correct.

Câu 205 **The function of the stick pusher is:**

A. to activate and push the stick forward at or beyond a certain value of angle of attack.

B. to activate and push the stick forward prior to stick shaker.

C. to vibrate the controls.

D. to pull the stick, to avoid a high speed stall.

Câu 206 **Which statement. about an aeroplane leaving ground effect at constant angle of attack, is correct? 1) The lift coefficient CL decreases. 2) The induced drag coefficient CDi remains constant.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is correct.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is correct.

Câu 207 **Mach buffet occurs:**

A. directly after exceeding MCRIT·

B. when the Mach number has increased to MCRIT.

C. following boundary layer separation due to shock wave formation.

D. when the stall angle of attack is exceeded.

Câu 208 **A jet aeroplane equipped with inboard and outboard ailerons as well as spoilers is cruising at its normal cruise Mach number. In this case:**

A. outboard ailerons are locked out.

B. the inboard and outboard ailerons are active.

C. only the spoilers will be active, not the ailerons.

D. spoilers are locked out.

Câu 209 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The static pressure in the undisturbed airflow is the same as in the throat. 2) The speed in the undisturbed airflow is lower than in the throat.**

A. 1) is correct. 2) Is incorrect.

B. 1) is incorrect. 2) is correct.

C. 1) is incorrect. 2) is incorrect

D. 1) is correct. 2) is correct.

Câu 210 **Which statement about a propeller is correct? 1) Asymmetric blade effect increases when engine power is increased. 2) Asymmetric blade effect reduces when the angle between the propeller axis and the airflow through the propeller disc increases.**

A. 1) is incorrect, 2) is correct

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is incorrect

D. 1) is correct, 2) is correct

Câu 211 **Given: theta = pitch angle; gamma = flight path angle; alpha = angle of attack; no wind, bank or sideslip. The relationship between these three parameters is:**

A. theta = gamma - alpha.

B. gamma = alpha - theta.

C. theta = gamma + alpha.

D. alpha = gamma - theta.

Câu 212 **In straight flight, as speed is reduced, whilst trimming to keep the stick force zero:**

A. the elevator is deflected further downwards and the trim tab further upwards.

B. the elevator is deflected further upwards and the trim tab further downwards.

C. both elevator and trim tab are deflected further upwards.

D. the elevator and trim tab do not move.

Câu 213 **In a steady, horizontal, co-ordinated turn:**

A. thrust equals drag, because there is equilibrium of forces along the direction of flight.

B. thrust is greater than drag, because the centrifugal force reduces the aeroplane speed.

C. thrust is greater than drag, because the excess thrust also supplies the centripetal force.

D. thrust equals drag, because drag is the same as in straight and level flight.

Câu 214 **Which three aerodynamic means decrease manoeuvring stick forces?**

A. Servo tab - horn balance - spring tab.

B. Servo tab - trim tab - balance tab.

C. Spring tab · trim tab - mass balancing weight

D. Spring tab - horn balance – bobweight

Câu 215 **Regarding deep stall characteristics, identify whether the following statements are correct or incorrect: 1) The combination of a wing with sweepback and a T-tail make an aeroplane prone to deep stall. 2) A stick pusher system can be fined to an aeroplane that exhibits abnormal stall characteristics.**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 216 **Wing flutter can be prevented by:**

A. ensuring that the wing CG is ahead of its torsional axis.

B. mounting the engines on the fuselage.

C. increasing wing elasticity.

D. increasing the aspect ratio of the wing.

Câu 217 **The lift coefficient (CL) of an aeroplane in steady horizontal flight is 0.4. Increase of angle of attack of 1° will increase CL by 0.09. A vertical up-gust instantly changes the angle of attack by 5°. The load factor will be:**

A. 3.18

B. 1.09

C. 2.0

D. 2.13

Câu 218 **Which statement is correct? 1) A propeller with a small blade angle is referred to as being in fine pitch. 2) A propeller with significant blade twist is referred to as being in coarse pitch.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is correct.

Câu 219 **Geometric washout (wing twist) means that:**

A. there is an airflow along the wing chat keeps It clean (prevents ice accumulation in flight).

B. the tip of the wing has higher angle of attack than the root.

C. the tip of the wing has lower angle of attack than the root.

D. the horizontal tail has lower angle of attack than the wing.

Câu 220 **The interference drag is the result of:**

A. separation of the induced vortex.

B. the addition of induced and parasite drag.

C. interaction between aeroplane parts (e.g. wing/fuselage).

D. downwash behind the wing.

Câu 221 **The lift coefficient CL versus angle of attack curve of a symmetrical aerofoil section Intersects the horizontal axis of the graph:**

A. at the origin.

B. to the right of the origin.

C. nowhere.

D. to the left of the origin.

Câu 222 **Regarding a symmetrical aerofoil section, which statement is correct? 1) The angle of attack has a negative value when the lift coefficient equals zero. 2) A nose up pitching moment exists when the lift coefficient equals zero.**

A. 1) is incorrect, 2) is correct.

B. 1) is incorrect, 2) is incorrect.

C. 1) is correct, 2) is incorrect.

D. 1) is correct, 2) is correct.

Câu 223 **The dynamic pressure is equal to: (note: p = density, v = speed)**

A. p x V^2

B. ½p x V

C. ½p x V^2

D. ½V x density²

Câu 224 **The additional increase of drag at Mach numbers above the critical Mach number is due to:**

A. increased angle of attack.

B. wave drag.

C. increased interference drag.

D. increased skin friction.

Câu 225 **In a convergent tube with an incompressible sub-sonic airflow. the following pressure changes will occur: Ps = static pressure; PDYN = dynamic pressure; PTOT = total pressure**

A. Ps decreases, PDYN increases. static temperature increases.

B. Ps increases. PDYN decreases. PTOT remains constant.

C. Ps decreases, PDYN increases. PTOT remains constant.

D. Ps decreases, PTOT increases, static temperature decreases.

Câu 226 **An accumulation of frost on an aircraft's wing will result in:**

A. a decrease in lift and drag.

B. an increase in lift and a decrease in drag.

C. a decrease in lift and an increase in drag.

D. an increase in lift and drag.

Câu 227 **An aeroplane's sideslip angle is defined as the angle between the:**

A. lateral axis and the horizontal plane.

B. speed vector and the horizontal plane.

C. speed vector and normal axis.

D. speed vector and the plane of symmetry.

Câu 228 **Regarding a positively cambered aerofoil section, which statement is correct? 1) The angle of attack has a negative value when the lift coefficient equals zero. 2) A nose down pitching moment exists when the lift coefficient equals zero.**

A. 1) is incorrect, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is correct.

Câu 229 **The unit of measurement of pressure is:**

A. kg/dm^2

B. lb/gal

C. psi

D. kg/m^3

Câu 230 **Which statement about an aeroplane entering ground effect is correct? 1) The downwash angle remains constant. 2) The induced angle of attack increases.**

A. 1) is incorrect, 2) is correct

B. 1) is correct, 2) is incorrect

C. 1) is correct, 2) is correct

D. 1) is incorrect, 2) is incorrect

Câu 231 **Considering subsonic incompressible airflow through a Venturi, which statement is correct? 1) The static pressure in the throat is the same as in the undisturbed airflow. 2) The speed of the airflow in the throat is higher than in the undisturbed airflow.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is incorrect

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is correct.

Câu 232 **Given a constant load factor, which of these statements about the variation of induced drag with changes of speed and mass are correct or incorrect? 1) When speed decreases, induced drag decreases. 2) When mass decreases. induced drag decreases.**

A. 1) is correct, 2) is incorrect

B. 1) is incorrect, 2) is correct

C. 1) is incorrect, 2) is incorrect

D. 1) is correct, 2) is correct

Câu 233 **When flaps are extended whilst maintaining straight and level flight at constant IAS, the lift coefficient will:**

A. eventually remain the same.

B. eventually increase.

C. eventually decrease.

D. first increase and then decrease.

Câu 234 **Which of these statements about the gust load factor on an aeroplane are correct or incorrect? 1) When the slope of the lift versus angle of attack curve increases, the gust load factor increases. 2) When the wing loading increases, the gust load factor decreases.**

A. 1) is incorrect, 2) is incorrect

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is correct, 2) is correct.

Câu 235 **On an aircraft with a differential aileron control system, when the control wheel is turned to the right:**

A. the right aileron moves up, and the left aileron moves down through a greater angle.

B. the right aileron moves down and the left aileron moves up through a greater angle.

C. the left aileron moves down and the right aileron moves up through a greater angle.

D. the left aileron moves up and the right aileron moves down through a greater angle.

Câu 236 **Which statement is correct? 1) A propeller with a small blade angle is referred to as being in coarse pitch. 2) A propeller with a large blade angle is referred to as being in fine pitch.**

A. 1) is correct, 2) is correct.

B. 1) is incorrect, 2) is correct.

C. 1) is incorrect, 2) is incorrect.

D. 1) is correct, 2) is incorrect.

Câu 237 **The primary purpose of equipping the power assisted flying control systems with trim capability is to:**

A. allow the pilot to maintain control in case of hydraulic failure.

B. relieve stresses on the trim tab.

C. relieve stresses on the hydraulic actuators.

D. bring the control forces to zero in steady flight.

Câu 238 An aeroplane maintains straight and level flight while the speed is doubled. The change in lift coefficient will be: x 0.25 x 2.0 x 0.5 x 4.0

Câu 239 In straight and level flight at a speed of 1.8 Vs, the lift coefficient, expressed as a percentage of its maximum (CLMAX), would be: 324% 31% 180% 56%

Câu 240 If the straight and level stall speed is 100 kts, what will be the stall speed in a 1.3 g turn? 114 kts 130 kts 81 kts 100 kts

Câu 241 Given an initial condition in straight and level flight with a speed of 1.4 Vs. The maximum bank angle attainable without stalling in a steady co-ordinated turn, whilst maintaining speed and altitude, is approximately: 32° 44° 60° 30°

Câu 242 Stalling speed in a 15° bank level turn is 60 kts. The stalling speed in a 45° bank level turn will be: 60 kts 85 kts 70 kts 83 kts

Câu 243 The frontal area of a body, placed in a certain airstream is increased by a factor 3. If the shape does not alter, the form drag will increase by a factor of: 1.5 9 6 3

Câu 244 The Mach number is 0.8 and the TAS is 400 kts. What is the speed of sound? 480 kts 320 kts 500 kts 600 kts

Câu 245 The value of the manoeuvre stability of an aeroplane is 150 N/g. The stick force required to achieve a load factor of 25 from steady level trimmed flight is: 150 N 375 N 450 N 225 N

Câu 246 If a stick force of 20 lbs is required to pull 4g from the position of trim, the stick force gradient is: 6.6 lbs/g 5 lbs/g 20 lbs/g 60 lbs/g

Câu 247 An aeroplane flying at 200 kts in straight and level flight is subjected to a disturbance that suddenly increases the speed by 60 kts. Assuming the angle of attack remains constant, the load factor will initially: increase to 1.3. increase to 1.6. increase to 1.69. remain unchanged since the angle of attack does not change.

Câu 248 If an aeroplane performs a steady co-ordinated horizontal turn at a TAS of 200 kts and a turn radius of 2000 m, the load factor (n) will be approximately: 2.0 1.4 1.1 1.8

Câu 249 By what percentage does the lift increase in a steady level turn at 45° angle of bank, compared to straight and level flight? 41% 19% 31% 52%

Câu 250 "Given: Aeroplane mass: 50000 kg, Lift/Drag ratio: 12, Thrust per engine: 30000 N. Assumed g: 10 m/s². For a straight, steady, wings level climb of a three-engine aeroplane, the all engines climb gradient will be:" 2.9% 9.7% 8.0% 8.5%

Câu 251 What is the heading change after 10 seconds of an aeroplane performing a rate one turn? 90° 30° 180° 10°

Câu 252 "Given: Aeroplane mass: 50 000 kg, Lift/Drag ratio: 10, Thrust per engine: 20 000 N.Assumed g: 10m/s². For a straight, steady, wings level climb of a four-engine aeroplane, the all engines climb gradient will be:" 8.5% 4.3% 7.7% 6.0%

Câu 253 "Given: Aeroplane mass: 50 000 kg, Lift/Drag ratio: 12, Thrust per engine: 28 000 N. Assumed g: 10 m/s². For a straight, steady, wings level climb of a three-engine aeroplane, the all-engines climb gradient is:" 9.7% 8.0% 8.5% 2.9%

Câu 254 "Given: Aeroplane mass: 50 000 kg, Lift/Drag ratio: 12, Thrust per engine: 60 000 N. Assumed g: 10 m/s². For a straight, steady, wings level climb of a twin engine aeroplane, the one-engine-inoperative climb gradient will be:" 3.7% 15.7% 14% 11 .7%

Câu 255 At a true airspeed of 300 kts and in a 45° bank level turn, the radius of turn would be (assume a value of 1 0 m/sec² for g): 2381 m 4743 m 3354 m 23780 m

Câu 256 What is the approximate value of the lift of an aeroplane at a gross weight of 50 000 N, in a horizontal coordinated 45° banked turn? 50 000 N 60 000 N 70 000 N 80 000 N

Câu 257 With a L/D ratio of 9:1 and flying at 12000 ft the glide range in still air would be approximately: 15 NM 20 NM 14 NM 18 NM

Câu 258 "Given: Aeroplane mass: 50 000 kg, Lift/Drag ratio: 12, Thrust per engine: 50 000 N. Assumed g: 10 m/s². For a straight, steady, wings level climb of a twin engine aeroplane, the all engines climb gradient will be:" 15.7% 3.7% 14% 11.7%

Câu 259 "Given: Aeroplane mass: 50 000 kg, lift/Drag ratio: 12, Thrust per engine: 28 000 N. Assumed g: 10 m/s². For a straight, steady, wings level climb of a four-engine aeroplane. the one-engine-inoperative climb gradient will be:" 8.5% 8.0% 9.7% 2.9%

Câu 260 By what percentage does the lift increase in a steady level turn at 30° angle of bank, compared to straight and level flight? 41% 15% 50% 10%

Câu 261 **All gust lines in the gust load diagram originate from a point where the:**

A. speed = 0, load factor = 0.

B. speed = VS, load factor = 0.

C. speed = 0, load factor = +1.

D. speed = VB, load factor = +1.

Câu 262 **An aeroplane flying at 200 kts in straight and level flight is subjected to a disturbance that suddenly increases the speed by 40 kts. Assuming the angle of attack remains constant, the load factor will initially:**

A. increase to 1.20.

B. increase to 1.21.

C. increase to 1.44.

D. remain unchanged, since the angle of attack does not change.

Câu 263 **Which of the following phenomena is counteracted by the use of differential ailerons? Adverse yaw. Turn co-ordination. Sensitivity to spiral dive. Aileron reversal.**

Câu 264 **Which kind of tab is commonly used in case of manual reversion of fully powered flight controls? Balance tab. Spring tab. Servo tab. Anti-balance tab.**

Câu 265 **Approximately how long does it take to fly a complete circle during a horizontal steady coordinated turn with a bank angle of 45° and a TAS of 200 kts? 65 seconds 95 seconds 125 seconds 650 seconds**

Câu 266 **An aircraft is in straight, level flight has a CL of 0.42, and a 1° increase in angle of attack would increase the CL by 0.1 . Following a gust that increases the angle of attack by 3°, what load factor would the aircraft be subject to? 0.7 1.7 1.4 2.4**

Câu 267 **What is the percentage increase in lift if the angle of attack increased by 4° due to a vertical gust. The straight and level coefficient of lift is 0.52, and for each 1^{0} change in angle of attack the coefficient of lift changes by 0.07.**

A. 18%

B. 85%

C. 54%

D. 24%

Câu 268 **An aeroplane is in a steady horizontal turn at a TAS of 194 kts. The turn radius is 1 000 m. The bank angle is (assume g = 10 m/s²)? 45° 30° 50° 60°**

Câu 269 **The manoeuvre stability of a large jet transport aeroplane is 280 N/g. What stick force is required, if the aeroplane is pulled to the limit manoeuvring load factor from a trimmed horizontal straight and steady flight (cruise configuration)? 1050 N 770N 630N 420N**

Câu 270 **An aeroplane has a stalling speed of 100 kts in a steady level flight. When the aeroplane is flying a level turn with a load factor of 1.5 the stalling speed is: 141 kts 122 kts 82 kts 150 kts**

Câu 271 **Whilst maintaining straight and level flight with a lift coefficient CL = 1 what will be the new approximate value of CL after the speed is increased by 30%? 0.30 0.25 0.60 0.50**

Câu 272 **An aeroplane has a stall speed of 78 kts at its mass of 6850 kg. What is the stall speed when the mass is 5000 kg? 91 kts 78 kts 57 kts 67 kts**

Câu 273 **An aircraft maintains a 50° bank angle during a constant altitude turn. Compared to straight and level flight the stall speed will be greater by a factor of: 1.6 1.41 1.25 2.0**

Câu 274 **Which of these statements about the gust load factor on an aeroplane are correct or incorrect? 1) When the mass decreases, the gust load factor decreases. 2) When the altitude decreases, the gust load factor decreases.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is correct.

C. 1) is incorrect, 2) is incorrect.

D. 1) is correct, 2) is correct.

Câu 275 **What is the approximate diameter of a steady, level, co-ordinated turn with a bank angle of 30° and a speed (TAS) of 500 kts? 13 km 17 km 23 km 7 km**

Câu 276 **If the airspeed is increased from 90 kts to 135 kts during a level 45° banked turn. the load factor will: decrease and the stall speed will increase. remain the same but the radius of turn will increase. increase as well as the stall speed. increase and the radius of turn will increase.**

Câu 277 **A light twin is in a turn at 30° bank and 180 kts TAS. A heavier aeroplane at the same bank and the same speed will:**

Câu 278 **"Which of these statements about VMCG determination are correct or incorrect? 1) During VMCG determination, nose wheel steering may be used. 2) During VMCG determination, the CG should be on the aft limit."**

A. 1) is incorrect, 2) is incorrect

B. 1) is incorrect, 2) is correct

C. 1) is correct, 2) is incorrect

D. 1) is correct, 2) is correct

Câu 279 **"Which of the following statements is correct? 1) VMCL is the minimum control speed in the landing configuration. 2) The speed VMCL is always limited by maximum rudder deflection."**

A. 1) is incorrect, 2) is incorrect

B. 1) is correct, 2) is correct

C. 1) is incorrect, 2) is correct

D. 1) is correct, 2) is incorrect

Câu 280 **An aeroplane climbs to cruising level with a constant pitch attitude and maximum climb thrust (assume no supercharger). How do the following variables change during the climb? (gamma = flight path angle) gamma decreases, angle of attack increases, IAS remains constant. gamma decreases, angle of attack increases, IAS decreases. gamma decreases, angle of attack remains constant, IAS decreases. gamma remains constant, angle of attack remains constant, IAS decreases.**

Câu 281 **In a co-ordinated horizontal turn, the magnitude of the centripetal force at 45° of bank: is equal to the lift of the aeroplane.**

Câu 282 **What effect, if any, does altitude have on VMC for an aeroplane with unsupercharged engines? Remains constant to full throttle height and then decreases. Increases with increasing altitude. Altitude has no effect. Decreases with increasing altitude.**

Câu 283 **"Which of these statements about the limiting value of 5° bank angle dunng VMCA determination are correct or incorrect? 1) When the bank angle is decreased from 5° to 0°, the value of VMCA will remain approximately constant. 2) When the bank angle is increased beyond 5°, there is a increasing risk of fin stall."**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is incorrect, 2) is incorrect

Câu 284 **1. An aeroplane in straight and level flight at 100 kts is subjected to a sudden disturbance in speed. Assuming the angle of attack remains constant initially and the load factor reaches a value of 1.96:**

A. The speed will have increased by 40 kts.

B. The speed will have decreased by 40 kts.

C. The speed will have increased by 20 kts.

D. The speed will have decreased by 20 kts.

Câu 285 **Which of the following is a correct design gust value factor applied in certification under EASA CS-25?**

A. 25 ft/sec at VB.

B. 66 ft/sec at VB.

C. 50 ft/sec at VD.

D. 55 ft/sec at VD.

Câu 286 **Which of the following is a correct design gust value factor applied in certification under EASA CS-25?**

A. 55 ft/sec at VC.

B. 66 ft/sec at VD.

C. 50 ft/sec at VC.

D. 25 ft/sec at VB.

Câu 287 **What is the limit load factor of a large transport aeroplane?**

A. 6

B. 4.4

C. 3.75

D. 2.5

Câu 288 **An aircraft is flown at 20% below its normal mass. Because of this, VA will be:**

A. 10% lower.

B. 20% higher.

C. 10% higher.

D. 20% lower.

Câu 289 **An aeroplane flying at 200 kts in straight and level flight is subjected to a disturbance that suddenly increases the speed by 10 kts. Assuming the angle of attack remains constant, how will the load factor be?**

A. increase to 1.10

B. increase to 1.20

C. increase to 1.05

D. increase to 1.30

Câu 290 **The stick force per g of a normal category aeroplane is 300 N/g. What stick force is required, if the aeroplane is pulled to the limit manoeuvring load factor from a trimmed horizontal straight and steady flight?**

A. 450 N

B. 750 N

C. 1125 N

D. 840 N

Câu 291 **An aeroplane is flying straight and level with a coefficient of lift of 0.55. The coefficient of lift increase by 0.08 per degree increase in angle of attack. If a vertical gust increases the angle of attack by 3°, what is the increase in load factor?**

A. 0.44

B. 0.52

C. 0.36

D. 0.60

Câu 292 **Taper ratio is the ratio of: the root thickness to the root chord. the span to the root chord. the tip chord to the root chord. the span to the mean chord.**

Câu 293 **Regarding the lift formula, if density doubles, lift will: also double. remain the same. be 4 times greater. halve.**

Câu 294 **Which line in the diagram represents an aeroplane with static longitudinal instability at all angles of attack?**

A. Line 2.

B. Line 4.

C. Line 3.

D. Line 1.

Câu 295 **Which of these statements about the pitching moment coefficient versus angle of attack lines in the annex is correct?**

A. The CG position is further aft at line 4 when compared with line 1.

B. The CG position is further forward at line 4 when compared with line 1.

C. Static longitudinal stability is greater at line 3 when compared with line 4 at low and moderate angles of attack.

D. In its curved part line 2 illustrates a decreasing static longitudinal stability at high angles of attack.

Câu 296 **The Correct sequence of cross-sections representing propeller blade twist is:**

A. Sequence 1

B. Sequence 2

C. Sequence 3

D. Sequence 4

Câu 297 **Which of these statements about the pitching moment coefficient versus angle of attack lines in the annex is correct?**

A. The horizontal part of line 2 illustrates static longitudinal instability.

B. Static longitudinal stability is greater at line 3 when compared with line 4 at low and moderate angles of attack.

C. In its curved part at high angles of attack line 2 illustrates increasing static longitudinal stability.

D. The CG position is further aft at line 4 when compared with line 1.

Câu 298 **Assuming all bodies have the same cross-sectional area and are in motion, which body will have the highest pressure drag?**

A. Semi circle

B. Rectangle

C. Oval

D. Circle

Câu 299 **Where on the curve in the diagram does the aeroplane exhibit static longitudinal instability?**

A. The whole curve.

B. Point 2.

C. Part 1.

D. Part 3.

Câu 300 **What kind of horizontal control surface is shown in the figure?**

A. Canard.

B. All-flying tail.

C. Elevator.

D. Frise type control.

Câu 301 **Which type of flap is shown in the picture 4?**

A. Plain flap

B. Split flap

C. Fowler flap

D. Double slotted flap

Câu 302 **Which type of flap is shown in the picture 3?**

A. Plain flap

B. Split flap

C. Fowler flap

D. Double slotted flap

Câu 303 **An aeroplane performs a straight and level horizontal flight at the same angle of attack at two different altitudes. (all other factors of importance being constant, assume ISA conditions and no compressibility effects)**

A. the TAS at the higher altitude is higher

B. the TAS at the higher altitude is lower

C. the TAS at the higher altitude cannot be determined

D. the TAS at both altitudes is the same

Câu 304 **Compared with level flight prior to the stall, the lift (1) and drag (2) in the stall change as follows:**

A. (1) decreases (2) decreases

B. (1) increases (2) increases

C. (1) decreases (2) increases

D. (1) increases (2) decreases

Câu 305 **A boundary layer fence on a swept wing will:**

A. improve the low speed characteristics

B. improve the high speed characteristics

C. increase the critical Mach Number

D. improve the lift coefficient of the trailing edge flap

Câu 306 **The formula for the Mach Number is: (a= speed of sound)**

A. M= a / TAS

B. M= IAS / a

C. M= TAS*a

D. M= TAS / a

Câu 307 **When the Mach number is slowly increased in straight and level flight the first shockwaves will occur:**

A. on the lower surface of the wing.

B. on the upper surface at the wing root.

C. somewhere on the horizontal tail.

D. somewhere on the fin.

Câu 308 **In what flight phase are the outboard ailerons (if present) not operated ?**

A. During a landing with strong and gusty crosswind to avoid overcontrolling the aeroplane.

B. During take-off, until lift-off.

C. During cruise flight.

D. In the approach phase, before landing.

Câu 309 **Given an aeroplane in steady, straight and level flight at low speed and considering the effects of CG location and thrust, the lowest value of wing lift occurs at:**

A. aft CG and idle thrust.

B. aft CG and take-off thrust.

C. forward CG and take-off thrust.

D. forward CG and idle thrust.

Câu 310 **"Flutter" may be caused by a:**

A. combination of bending and torsion of the structure.

B. combination of fuselage bending and wing torsion.

C. high airspeed aerodynamic wing stall.

D. combination roll control reversal and low speed stall.

Câu 311 **An aeroplane accelerates from 80 kts to 160 kts at a load factor equal to 1. By what factors will the induced drag coefficient (i) and the induced drag (ii) change?**

A. (i) 1; ii) 1/2.

B. (i) 1/4; ii) 2.

C. (i) 1/2; ii) 1/16.

D. (i) 1/16; ii) 1/4.

Câu 312 **What is the effect of winglets on the drag of the wing?**

A. Increase friction drag, decrease form drag.

B. Increase parasite drag, decrease induced drag.

C. Increase induced drag, decrease friction drag.

D. Increase induced drag, decrease interference drag.

Câu 313 **The vane of a stall warning system with a flapper switch is activated by the change of the:**

A. point of lowest pressure.

B. stagnation point.

C. centre of gravity.

D. centre of pressure.

Câu 314 **Which of the following wing planforms produces the lowest induced drag? (assume zero wing twist)**

A. Rectangular.

B. Elliptical.

C. Tapered.

D. Circular.

Câu 315 **Which of the following provides a positive contribution to static directional stability?**

A. Moving the centre of gravity aft.

B. A forward swept wing.

C. A low wing as compared with a high wing.

D. A dorsal fin.

Câu 316 **Spoilers mounted on the wing upper surface can be used to:**

A. prevent aeroplane yaw following engine failure.

B. assist the ailerons.

C. increase lift and drag.

D. assist the elevators.

Câu 317 **The positive manoeuvring limit load factor for a large jet transport aeroplane with flaps extended is:**

A. 1,5

B. 2,5

C. 3,75

D. 2

Câu 318 **If the RPM lever of a constant speed propeller is moved forward during a glide with idle power and whilst maintaining constant airspeed, the propeller pitch will:**

A. decrease and the rate of descent will decrease.

B. increase and the rate of descent will decrease.

C. increase and the rate of descent will increase.

D. decrease and the rate of descent will increase.

Câu 319 **The greatest drag produced by the variable pitch propeller on a piston engine will occur when the propeller is:**

A. used during a powered glide.

B. stopped in fine pitch.

C. stopped in coarse pitch.

D. windmilling.

Câu 320 **Which statement is correct?**

Câu 321 **A propeller with a small blade angle is referred to as being in coarse pitch.**

Câu 322 **A propeller with a large blade angle is referred to as being in fine pitch.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is incorrect.

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is correct.

Câu 323 **If the chord of the propeller blades is increased, with everything else remaining constant:**

A. the power absorbed will increase and the efficiency will increase

B. the power absorbed will increase and the efficiency will decrease

C. the power absorbed will decrease and the efficiency will increase

D. the power absorbed will increase and the efficiency will remain constant

Câu 324 **Given an aeroplane with a propeller turning clockwise as seen from behind, the torque effect during the take-off run will tend to:**

A. roll the aeroplane to the right.

B. pitch the aeroplane nose down.

C. roll the aeroplane to the left.

D. pitch the aeroplane nose up.

Câu 325 **The phugoid motion is a long term oscillation around the:**

A. vertical axis.

B. normal axis.

C. lateral axis.

D. longitudinal axis.

Câu 326 **Vortex generators mounted on the upper wing surface will:**

A. increase the effectiveness of the spoiler due to increase in parasite drag.

B. decrease the interference drag of the trailing edge flaps.

C. decrease the shock wave induced separation.

D. decrease the stalling speed by increase of the tangential velocity of the swept wing.

Câu 327 **If pressure is kept constant and temperature increases, the density:**

A. increases.

B. decreases.

C. has no effect.

D. remains constant.

Câu 328 **Consider an aerofoil with a certain camber and a positive angle of attack. At which location will the highest flow velocities occur?**

A. At the trailing edge.

B. Upper side.

C. In front of the stagnation point.

D. Lower side.

Câu 329 **Ignoring downwash effects on the tailplane, extension of Fowler-type flaps, will produce:**

A. a nose-up pitching moment.

B. no pitching moment.

C. a nose-down pitching moment.

D. a force which reduces drag.

Câu 330 **Considering subsonic incompressible airflow through a Venturi, which statement is correct?**

Câu 331 **The dynamic pressure in the throat is the same as in the undisturbed airflow.**

Câu 332 **The total pressure in the throat is lower than in the undisturbed airflow.**

A. 1) is correct, 2) is incorrect.

B. 1) is incorrect, 2) is correct.

C. 1) is correct, 2) is correct.

D. 1) is incorrect, 2) is incorrect.

Câu 333 **Decreasing the aspect ratio of a wing:**

A. decreases induced drag.

B. increases gust load.

C. decreases stall speed.

D. increases induced drag.

Câu 334 **Drag is acting in the direction of ___. Lift is perpendicular to the ___.**

A. relative wind (airflow)

B. horizon

C. chord line

D. longitudinal axis

Câu 335 **On a symmetrical aerofoil, the pitching moment for which CL = 0 is:**

A. negative (pitch-down)

B. positive (pitch-up)

C. zero

D. equal to the moment coefficient for stabilized angle of attack

Câu 336 **If the continuity equation is applicable, what will happen to the air density (rho) if the cross sectional area of a tube changes? (low speed, subsonic and incompressible flow)**

A. rho1 > rho2

B. The density depends on the change of the tube area

C. rho1 < rho2

D. rho1 = rho2

Câu 337 **Which of the following wing planforms produces the lowest induced drag? (all other relevant factors constant)**

A. Rectangular

B. Elliptical

C. Tapered

D. Circular

Câu 338 **If an aeroplane flies in the ground effect**

A. the induced angle of attack is increased

B. the lift is increased and the drag is decreased

C. drag and lift are reduced

D. the effective angle of attack is decreased

Câu 339 **The pitch up effect of an aeroplane with swept wing in a stall is due to the**

A. aft movement of the centre of gravity

B. forward movement of the centre of gravity

C. wing root stalling first

D. wing tip stalling first

Câu 340 **During the take-off roll with a strong crosswind from the left, a four engine jet aeroplane with wing mounted engines experiences an engine failure above V1. Which engine causes the greatest control problem?**

A. The right outboard engine

B. The left outboard engine

C. The right inboard engine

D. The left inboard engine

Câu 341 **Differential aileron deflection:**

A. increases the CLmax

B. is required to achieve the required roll-rate

C. equals the drag of the right and left aileron

D. is required to keep the total lift constant when ailerons are deflected

Câu 342 **How can wing flutter be prevented?**

A. By increasing the aspect ratio of the wing

B. By installing the fuel tanks in the fuselage

C. By mounting the engines on the fuselage

D. By locating mass in front of the torsion axis of the wing

Câu 343 **The positive manoeuvring limit load factor for a light aeroplane in the utility category in the clean configuration is:**

A. 2.5

B. 4.4

C. 6.0

D. 3.8

Câu 344 **Constant-speed propellers provide a better performance than fixed-pitch propellers because they:**

A. have more blade surface area than a fixed-pitch propeller.

B. produce a greater maximum thrust than a fixed-pitch propeller.

C. have a higher maximum efficiency than a fixed-pitch propeller.

D. produce an almost maximum efficiency over a wider speed range.

Câu 345 **If you push forward the RPM lever of a constant speed propeller during a glide with idle power and constant speed, the propeller pitch will:**

A. increase and the rate of descent will increase.

B. increase and the rate of descent will decrease.

C. decrease and the rate of descent will decrease.

D. decrease and the rate of descent will increase.

Câu 346 **An aeroplane performs a continuous descent with 160 KT IAS and 1000 fpm vertical speed. In this condition:**

A. lift is equal to weight

B. lift is less than drag

C. drag is less than the combined forces that move the aeroplane forward

D. weight is greater than lift

Câu 347 **What factors determine the distance travelled over the ground of an aeroplane in a glide ?**

A. The wind and the lift/drag ratio, which changes with angle of attack

B. The wind and the aeroplane's mass

C. The wind and CLmax

D. The wind and weight together with power loading, which is the ratio of power output to the weight

Câu 348 **The lift to drag ratio determines the**

A. maximum rate of climb

B. horizontal distance in the climb up to a given altitude

C. endurance speed

D. horizontal glide distance from a given altitude at zero wind and zero thrust

Câu 349 **An aeroplane, being manually flown in the speed unstable region, experiences a disturbance that causes a speed reduction. If the altitude is maintained and thrust remains constant, the aeroplane speed will:**

A. initially increase and thereafter decrease.

B. further decrease.

C. increase.

D. initially further decrease and thereafter increase.

Câu 350 **What is the correct relationship between the true airspeed for (i) minimum sink rate and (ii) minimum glide angle, at a given altitude?**

A. (i) is equal to (ii)

B. (i) is less than (ii)

C. (i) can be greater than or less than (ii) depending on the type of aeroplane

D. (i) is greater than (ii)

Câu 351 **The lift coefficient Cl versus angle of attack curve of a positively cambered aerofoil section intersects the horizontal axis of the graph:**

A. nowhere.

B. to the left of the origin.

C. at the origin.

D. to the right of the origin.

Câu 352 **Static pressure acts:**

A. only in direction of the flow

B. only perpendicular to the direction of the flow

C. in all directions

D. only in the direction of the total pressure

Câu 353 **What is the effect of high aspect ratio of an aeroplane's wing on induced drag?**

A. It is increased because high aspect ratio produces greater downwash

B. It is reduced because the effect of wing-tip vortices is reduced

C. It is unaffected because there is no relation between aspect ratio and induced drag

D. It is increased because high aspect ratio has greater frontal area

Câu 354 **Dangerous stall characteristics, in large transport aeroplanes that require stick pushers to be installed, include:**

A. distinct aerodynamic buffet

B. pitch down and yaw

C. pitch down and increase in speed

D. excessive wing drop and deep stall

Câu 355 **The stall speed increases, when: (all other factors of importance being constant)**

A. weight decreases

B. minor altitude changes occur e.g. 0-10000'

C. spoilers are retracted

D. pulling out of a dive

Câu 356 **Rotation around the normal axis is called:**

A. pitching.

B. yawing.

C. rolling.

D. slipping.

Câu 357 **A "slat" is:**

A. a leading edge high lift device, hinged at its forward edge, which increases the camber and leading edge radius of the main aerofoil when deployed.

B. a trailing edge device which is automatically deployed by movement of the stagnation point at high angles of attack.

C. a fixed slot in the leading edge of some older types of aircraft.

D. an auxiliary, cambered aerofoil positioned forward of the main aerofoil so as to form a slot.

Câu 358 **CL varies with:**

A. density.

B. angle of attack.

C. velocity.

D. pressure.

Câu 359 **If the trailing edge flaps are lowered (fully extended), in order to maintain constant IAS and level flight:**

A. the nose must be lowered and thrust increased.

B. attitude and thrust must be kept constant.

C. attitude must be increased and thrust increased.

D. the nose must be raised and thrust increased.

Câu 360 **Which statement is correct? I. Propeller gyroscopic effect occurs during aeroplane yaw changes. II. Propeller gyroscopic effect is most noticeable during low speed flight at high propeller RPM.**

A. I is correct, II is incorrect.

B. I is incorrect, II is incorrect.

C. I is incorrect, II is correct.

D. I is correct, II is correct.

Câu 361 **Which statement is correct? I. Stall speeds are determined with the CG at the aft limit. II. Minimum control speeds are determined with the CG at the forward limit.**

A. I is incorrect, II is correct.

B. I is correct, II is correct.

C. I is incorrect, II is incorrect.

D. I is correct, II is incorrect.

Câu 362 **Which statement is correct at the speed for minimum drag (subsonic) ?**

A. Induced drag is greater than the parasite drag.

B. The gliding angle is minimum (assume zero thrust).

C. The CL/CD ratio is minimum (assume zero thrust).

D. Propeller aeroplanes fly at that speed at max. endurance.

Câu 363 **The effects of very heavy rain (tropical rain) on the aerodynamic characteristics of an aeroplane are:**

A. decrease of CLmax and increase of drag

B. increase of CLmax and increase of drag

C. increase of CLmax and decrease of drag

D. decrease of CLmax and decrease of drag

Câu 364 **In a stationary subsonic streamline flow pattern, if the streamlines converge, in this part of the pattern, the static pressure (I) will ...and the velocity (II) will ...:**

A. (I) increase, (II) decrease.

B. (I) increase, (II) increase.

C. (I) decrease, (II) decrease.

D. (I) decrease, (II) increase.

Câu 365 **The true airspeed (TAS) is:**

A. lower than the indicated airspeed (IAS) at ISA conditions and altitudes below sea level

B. higher than the speed of the undisturbed airstream about the aeroplane

C. lower than the speed of the undisturbed airstream about the aeroplane

D. equal to the IAS, multiplied by the air density at sea level

Câu 366 **What is the SI unit of measurement for power?**

A. kgm/s2

B. Pa/m2

C. Nm/s

D. N/m

Câu 367 **On an asymmetrical, single curve aerofoil, in subsonic airflow, at low angle of attack, when the angle of attack is increased, the centre of pressure will (assume a conventional transport aeroplane):**

A. move forward

B. remain matching the airfoil aerodynamic centre

C. move aft

D. remain unaffected

Câu 368 **The frontal area of a body, placed in a certain airstream is increased by a factor 3. The shape will not alter. The aerodynamic drag will increase with a factor:**

A. 9

B. 3

C. 1.5

D. 6

Câu 369 **Which of the following will reduce induced drag?**

A. Low aspect ratio

B. Flying at high angles of attack

C. Extending the flaps

D. Elliptical lift distribution

Câu 370 **Which of the following aeroplane parts affect induced drag most?**

A. Landing gear

B. Wing tip

C. Wing root junction

D. Engine cowling

Câu 371 **After take-off the slats (when installed) are always retracted later than the flaps. Why?**

A. Because FLAPS EXTENDED gives a large decrease in stall speed with relatively less drag

B. Because SLATS EXTENDED provides a better view from the cockpit than FLAPS EXTENDED

C. Because VMCA with SLATS EXTENDED is more favourable compared to the FLAPS EXTENDED situation

D. Because SLATS EXTENDED gives a large decrease in stall speed with relatively less drag

Câu 372 **The speed of sound is affected by the:**

A. density of the air.

B. temperature of the air.

C. humidity of the air.

D. pressure of the air.

Câu 373 **What data may be obtained from the Buffet Onset Boundary chart?**

A. The values of the Mach Number at which low speed and shock-stall occur at different weights and altitudes

B. The values of MMO at different weights and altitudes

C. The values of Mcrit at different weights and altitudes

D. The values of the Mach Number at which low speed and Mach Buffet occur at different weights and altitudes

Câu 374 **Which of the following flight phenomena can occur at Mach numbers below the critical Mach number?**

A. Mach buffet.

B. Dutch roll.

C. Shock stall.

D. Tuck under.

Câu 375 **The critical Mach number for an aerofoil equals the free stream airfoil Mach number at which:**

A. sonic speed (M=1) is reached at a certain point on the upper side of the aerofoil.

B. the maximum operating temperature is reached.

C. a shock-wave appears on the upper surface.

D. a 'supersonic bell' appears on the upper surface.

Câu 376 **When air has passed through a shock wave the local speed of sound is:**

A. increased

B. not affected

C. decreased

D. decreased and beyond a certain Mach number start increasing again

Câu 377 **To increase the critical Mach number a conventional aerofoil should**

A. have a low thickness to chord ratio.

B. have a large leading edge radius.

C. be used with a high angle of attack.

D. have a large camber.

Câu 378 **Which statement is correct regarding a shockwave on a lift generating wing?**

A. It is located at the greatest wing thickness when the aeroplane reaches the speed of sound

B. It reaches its highest strength when flying at the critical Mach number

C. It moves forward when the Mach number is increased

D. It moves slightly aft when an aileron is deflected downward

Câu 379 **How will the density and static temperature change in a supersonic flow from a position in front of a shock wave to behind it ?**

A. Density will decrease, static temperature will decrease.

B. Density will increase, static temperature will increase.

C. Density will decrease, static temperature will increase.

D. Density will increase, static temperature will decrease.

Câu 380 **During landing of a low-winged jet aeroplane, the greatest elevator up deflection is normally required when the flaps are:**

A. up and the cg is fully forward.

B. fully down and the cg is fully forward.

C. up and the cg is fully aft.

D. fully down and the cg is fully aft.

Câu 381 **The 'short period mode' is an:**

A. oscillation about the longitudinal axis

B. oscillation about the lateral axis

C. oscillation about the vertical axis

D. unstable movement of the aeroplane, induced by the pilot

Câu 382 **The aerodynamic contribution to the static longitudinal stability of the nacelles of aft fuselage mounted engines is:**

A. zero

B. maximum during cruise

C. positive

D. negative

Câu 383 **The effect of a ventral fin on the static stability of an aeroplane is as follows: (1=longitudinal, 2=lateral, 3=directional)**

A. 1: negative, 2: positive, 3: positive

B. 1: positive, 2: negative, 3: negative

C. 1: no effect, 2: positive, 3: negative

D. 1: no effect, 2: negative, 3: positive

Câu 384 **Static lateral stability should not be too small, because:**

A. after a disturbance around the longitudinal axis the aeroplane would show too strong a tendency to return to the original attitude

B. the aeroplane would show too strong a tendency to spiral dive

C. the aeroplane would show too strong a tendency for Dutch Roll

D. the stick force per g would become unacceptably small

Câu 385 **Examples of aerodynamic balancing of control surfaces are:**

A. weight in the nose of the control surface, horn balance

B. Fowler flaps, upper and lower rudder

C. seal between wing's trailing edge and leading edge of a control surface, horn balance

D. upper and lower rudder, seal between wing's trailing edge and leading edge of a control surface

Câu 386 **What should be usually done to perform a landing with the stabilizer jammed in the cruise flight position ?**

A. if possible, relocate as many passengers as possible to the front of the cabin.

B. choose a lower landing speed than normal.

C. use the Mach trimmer until after landing.

D. choose a higher landing speed than normal and/or use a lower flap setting for landing.

Câu 387 **Increase of the delta load factor due to a given vertical upgust at a given EAS occurs when:**

A. the weight increases

B. the slope of the CL - alpha graph becomes steeper

C. the wing loading increases

D. the altitude increases

Câu 388 **Does the pitch angle of a constant speed propeller alter in medium horizontal turbulence?**

A. Yes slightly

B. Yes strongly

C. Yes, but only if the pitch is full-fine

D. No

Câu 389 **The effect of a positive wing sweep on static directional stability is as follows:**

A. Destabilizing dihedral effect

B. Stabilizing effect

C. No effect

D. Negative dihedral effect

Câu 390 **The gust load factor due to a vertical upgust increases when:**

A. the gradient of the CL-alpha graph increases.

B. altitude increases.

C. wing loading increases.

D. weight increases.

Câu 391 **The SI units of air density (I) and force (II) are:**

A. (I) N / m3, (II) N

B. (I) kg / m2, (II) kg

C. (I) kg / m3, (II) N

D. (I) N / kg, (II) kg

Câu 392 **The angle between the aeroplane longitudinal axis and the chord line is the:**

A. climb path angle

B. glide path angle

C. angle of incidence

D. angle of attack

Câu 393 **The lift force, acting on an aerofoil:**

A. increases, proportional to the angle of attack until 40 degrees

B. is maximum at an angle of attack of 2 degrees

C. is mainly caused by overpressure at the underside of the aerofoil

D. is mainly caused by suction on the upperside of the aerofoil

Câu 394 **The continuity equation states: If the area of a tube is increasing, the speed of the subsonic and incompressible flow inside is**

A. sonic

B. increasing

C. decreasing

D. not changing

Câu 395 **With increasing angle of attack, the stagnation point will move (I) ...and the point of lowest pressure will move (II) ...Respectively (I) and (II) are:**

A. (I) down, (II) aft.

B. (I) down, (II) forward.

C. (I) up, (II) forward.

D. (I) up, (II) aft.

Câu 396 **Increasing dynamic pressure will have the following effect on the drag of an aeroplane (all other factors of importance remaining constant):**

A. none

B. at speeds greater than the minimum drag speed, drag increases

C. drag increases across the whole speed range

D. drag decreases across the whole speed range

Câu 397 **Induced drag is created by the:**

A. spanwise flow pattern resulting in the tip vortices

B. separation of the boundary layer over the wing

C. propeller wash blowing across the wing

D. interference of the air stream between wing and fuselage

Câu 398 **In what way do (1) induced drag and (2) parasite drag alter with increasing speed in straight and level flight?**

A. (1) decreases and (2) decreases

B. (1) decreases and (2) increases

C. (1) increases and (2) increases

D. (1) increases and (2) decreases

Câu 399 **Ground effect has the following influence on the landing distance:**

A. increases, only if the landing flaps are fully extended

B. decreases

C. does not change

D. increases

Câu 400 **Entering the stall the centre of pressure of a straight (1) wing and of a strongly swept back wing (2) will:**

A. (1) move aft, (2) move aft

B. (1) not move (2) move forward

C. (1) move aft, (2) not move

D. (1) move aft, (2) move forward

Câu 401 **Increase of wing loading will:**

A. decrease take off speeds

B. decrease the minimum gliding angle

C. increase CLmax

D. increase the stall speeds

Câu 402 **The stalling speed in IAS will change according to the following factors:**

A. Increase with increased load factor, icing conditions and an aft c.g. location

B. Decrease in a forward c.g. location, higher altitude and due to the slip stream from a propeller on an engine located forward of the wing

C. Increase during turn, increased mass and forward c.g. location

D. Increase with increased load factor, more flaps but will not increase due to the bank angle in a turn

Câu 403 **Which of the following statements about the difference between Krueger flaps and slats is correct?**

A. Deploying a Krueger flap will form a slot, deploying a slat does not

B. Deploying a slat will increase critical angle of attack, deploying a Krueger flap does not

C. Deploying a Krueger flap will increase critical angle of attack, deploying a slat does not

D. Deploying a slat will form a slot, deploying a Krueger flap does not

Câu 404 **Mcrit is the free stream Mach Number at which:**

A. shockstall occurs.

B. somewhere about the airframe Mach 1 is reached locally.

C. the critical angle of attack is reached.

D. Mach buffet occurs.

Câu 405 **At higher altitudes, the stall speed (IAS):**

A. decreases until the tropopause

B. remains the same

C. increases

D. decreases

Câu 406 **The loss of total pressure in a shock wave is due to the fact that**

A. the speed reduction is too high.

B. the friction in the boundary layer is higher.

C. the static pressure decrease is comparatively high.

D. kinetic energy in the flow is converted into heat energy.

Câu 407 **The critical Mach number can be increased by**

A. positive dihedral of the wings.

B. a T-tail.

C. sweepback of the wings.

D. an increase in wing aspect ratio.

Câu 408 **Vortex generators on the upper side of the wing surface will:**

A. increase the critical Mach Number.

B. increase the magnitude of the shock wave.

C. decrease the span wise flow at high Mach Numbers.

D. decrease the intensity of shock wave induced air separation.

Câu 409 **The bow wave will first appear at:**

A. the critical Mach number

B. Mach 1

C. a Mach number just below M = 1

D. a Mach number just above M = 1

Câu 410 **In which situation would the wing lift of an aeroplane in straight and level flight have the highest value?**

A. Forward centre of gravity and idle thrust

B. Forward centre of gravity and take-off thrust

C. Aft centre of gravity and idle thrust

D. Aft centre of gravity and take-off thrust

Câu 411 **The CG of an aeroplane is in a fixed position forward of the neutral point. Which of these statements about the stick force stability is correct?**

A. Stick force stability is not affected by trim

B. Aeroplane nose up trim decreases the stick force stability

C. An increase of 10 KT from the trimmed position at low speed has more effect on the stick force than an increase of 10 KT from the trimmed position at high speed

D. Maintaining a steady speed above the trim speed requires a pull force

Câu 412 **In case the Mach trimmer fails:**

A. try to relocate the centre-of-gravity aft.

B. the speed must be kept constant.

C. the aeroplane weight must be limited.

D. the Mach number must be limited.

Câu 413 **Which statement is correct?**

A. I is incorrect, II is correct.

B. I is correct, II is correct.

C. I is incorrect, II is incorrect

D. I is correct, II is incorrect.

Câu 414 **Dihedral of the wing:**

A. is the only way to increase the static lateral stability.

B. is only positive for aeroplanes with high mounted wings.

C. increases the static lateral stability.

D. decreases the static lateral stability.

Câu 415 **Given two identical aeroplanes with wing mounted engines, one fitted with jet engines and the other with counter rotating propellers, what happens following an engine failure?**

A. The same roll tendency for both aeroplanes.

B. The same yaw tendency for both aeroplanes regardless of left or right engine failure.

C. Less roll tendency for the propeller aeroplane.

D. More roll tendency for the propeller aeroplane.

Câu 416 **When are outboard ailerons (if present) de-activated?**

A. Flaps (and slats) retracted or speed above a certain value

B. Landing gear extended

C. Landing gear retracted

D. Flaps (and/or slats) extended or speed below a certain value

Câu 417 **In general transport aeroplanes with power assisted flight controls are fitted with an adjustable stabilizer instead of trim tabs on the elevator. This is because:**

A. trim tab deflection increases Mcrit

B. mechanical adjustment of trim tabs creates too many problems

C. effectiveness of trim tabs is insufficient for those aeroplanes

D. the pilot does not feel the stick forces at all

Câu 418 **VLE is defined as the:**

A. maximum speed at which the landing gear may be extended or retracted.

B. maximum landing gear extended speed.

C. maximum authorised speed.

D. maximum flap extended speed.

Câu 419 **Which statement is correct about the gust load on an aeroplane (IAS and all other factors of importance remaining constant)?**

Câu 420 **the gust load increases, when the weight decreases.**

Câu 421 **the gust load increases, when the altitude increases.**

A. 1 is correct and 2 is incorrect

B. 1 is incorrect and 2 is correct

C. 1 and 2 are incorrect

D. 1 and 2 are correct

Câu 422 **The torque effect during the take off run in respect of a right hand propeller, when viewed from behind, will tend to:**

A. roll the aeroplane to the right

B. pitch the aeroplane nose down

C. roll the aeroplane to the left

D. pitch the aeroplane nose up

Câu 423 **An aircraft has a buffet margin of 0.13g. 9.81m/s² standard for gravity. The maximum angle of bank where the stall is reached:**

A. 15°

B. 9°

C. 88°

D. 27°

Câu 424 **The relative thickness of an aerofoil is expressed as:**

A. % chord

B. metres

C. camber

D. degrees cross section tail angle

Câu 425 **The induced drag:**

A. increases as the lift coefficient increases

B. increases as the aspect ratio increases

C. has no relation to the lift coefficient

D. increases as the magnitude of the tip vortices decreases

Câu 426 **An aeroplane transitions from steady straight and level flight into a horizontal co-ordinated turn with a load factor of 2, the speed remains constant and the:**

A. induced drag increases by a factor of 4

B. lift increases by a factor of 4

C. total drag increases by a factor of 4

D. angle of attack increases by a factor of ¼

Câu 427 **In a steady level, co-ordinated turn, the load factor n and the stalling speed VS will be:**

A. n greater than 1, VS lower than in straight and level flight

B. n greater than 1, VS higher than in straight and level flight

C. n smaller than 1, VS lower than in straight and level flight

D. n smaller than 1, VS higher than in straight and level flight

Câu 428 **Which aeroplane design has the highest probability of a super stall?**

A. A canard wing

B. A low horizontal tail

C. Swept wings

D. A T-tail

Câu 429 **The stalling speed in IAS will change according to the following factors:**

A. May increase during turbulence and will always increase when banking in a turn

B. Will increase during turn, increased mass and an aft c.g. location

C. Will increase with increased load factor, icing conditions and more flaps

D. Will decrease with a forward c.g. location, lower altitude and due to the slip stream from a propeller on an engine located forward of the wing

Câu 430 **When 'spoilers' are used as speed brakes:**

A. they do not affect wheel braking action during landing

B. at same angle of attack, CL remains unaffected

C. CLmax of the polar curve is not affected

D. at same angle of attack, CD is increased and CL is decreased

Câu 431 **An aeroplane is descending at a constant Mach number from FL 350. What is the effect on true airspeed ?**

A. It decreases as altitude decreases

B. It increases as temperature increases

C. It decreases as pressure increases

D. It remains constant

Câu 432 **A jet aeroplane is cruising at high altitude with a Mach-number, that provides a buffet margin of 0.3 g incremental. In order to increase the buffet margin to 0.4 g incremental the pilot must:**

A. fly at a larger angle of attack

B. extend the flaps to the first selection

C. fly at a lower altitude and the same Mach-number

D. fly at a higher Mach-number

Câu 433 **Some aeroplanes have a 'waist' or 'coke bottle' contoured fuselage. This is done to**

A. increase the strength of the wing root junction.

B. apply area rule.

C. improve the low speed characteristics.

D. fit the engine intakes better to the fuselage.

Câu 434 **If the total sum of moments about one of its axes is not zero, an aeroplane would:**

A. be difficult to control

B. experience an angular acceleration about that axis

C. not be affected because the situation is normal

D. fly a path with a constant curvature

Câu 435 **The (1) stick force stability and the (2) manoeuvre stability are positively affected by:**

A. (1) aft C.G. movement (2) aft CG. movement.

B. (1) forward

C. G. movement (2) forward CG. movement.

D. (1) forward C.G. movement (2) trimming the aeroplane nose up.

Câu 436 **Positive static lateral stability is the tendency of an aeroplane to:**

A. roll to the right in a right turn.

B. roll to the left in the case of a positive sideslip angle (aeroplane nose to the left).

C. roll to the right in the case of a positive sideslip angle (aeroplane nose to the left).

D. roll to the left in a right turn.

Câu 437 **What will increase the sensitivity to Dutch Roll?**

A. An increased anhedral.

B. A forward movement of the centre of gravity.

C. An increased static directional stability.

D. An increased static lateral stability.

Câu 438 **The manoeuvring speed VA expressed in indicated airspeed, of a transport aeroplane:**

A. is a constant value.

B. depends on aeroplane mass and pressure altitude.

C. is independent of aeroplane mass, but dependent on pressure altitude.

D. depends on aeroplane mass and is independent of pressure altitude.

Câu 439 **The angle of attack of a fixed pitch propeller blade increases when:**

A. velocity and RPM increase

B. forward velocity increases and RPM decreasing

C. velocity and RPM decrease

D. RPM increases and forward velocity decreases

Câu 440 **Gyroscopic precession of a propeller is induced by:**

A. increasing RPM and yawing.

B. increasing RPM and rolling.

C. pitching and yawing.

D. pitching and rolling.

Câu 441 **Which of the following statements is correct I. VMCL is the minimum control speed in the landing configuration. II. The speed VMCL is always limited by maximum rudder deflection.**

A. I is incorrect, II is correct.

B. I is correct, II is correct.

C. I is correct, II is incorrect.

D. I is incorrect, II is incorrect.

Câu 442 **Which of the following statements is correct? I. A dorsal fin increases the contribution of the vertical tail plane to the static directional stability, in particular at large angles of sideslip.**

A. I is incorrect, II is incorrect.

B. I is correct, II is correct.

C. I is correct, II is incorrect.

D. I is incorrect, II is correct.

Câu 443 **The location of the centre of pressure of a positive cambered wing at increasing angle of attack will:**

A. shift aft

B. not shift

C. shift in spanwise direction

D. shift forward

Câu 444 **Which statement about induced drag and tip vortices is correct?**

A. The flow direction at the upper side of the wing has a component in wing root direction, the flow at the underside of the wing in wing tip direction

B. Tip vortices can be diminished by vortex generators

C. The flow direction at the upper and under side of the wing, both deviate in wing tip direction

D. The wing tip vortices and the induced drag decrease at increasing angle of attack

Câu 445 **The induced drag coefficient, CDi is proportional to:**

A. CL

B. CL square

C. CLmax

D. square root (CL)

Câu 446 **Which of the following statements about the spin is correct?**

A. An aeroplane is prone to spin when the stall starts at the wing root

B. Every aeroplane should be designed such that it can never enter a spin

C. In the spin, airspeed continuously increases

D. During spin recovery the ailerons should be kept in the neutral position

Câu 447 **A jet aeroplane cruises buffet free at high constant altitude. Which type of stall can occur if this aeroplane decelerates during an inadvertent increase in load factor?**

A. Deep stall

B. Low speed stall

C. Shock stall

D. Accelerated stall

Câu 448 **Deploying a Fowler flap, the flap will:**

A. turn down, then move aft

B. move aft, then turn down

C. just turn down

D. just move aft

Câu 449 **The trailing edge flaps when extended:**

A. significantly lower the drag

B. degrade the best angle of glide

C. significantly increase the angle of attack for maximum lift

D. increase the zero lift angle of attack

Câu 450 **A plain flap will increase CLmax by**

A. increasing the camber of the aerofoil.

B. centre of lift movement.

C. increasing angle of attack.

D. boundary layer control.

Câu 451 **Spoiler deflection causes:**

A. an increase in lift only

B. an increase in lift and drag

C. an increase in drag and decrease in lift

D. decrease in lift and drag

Câu 452 **The critical Mach Number of an aeroplane is the free stream Mach Number, which produces the first evidence of:**

A. buffet.

B. shock wave.

C. local sonic flow.

D. supersonic flow.

Câu 453 **Critical Mach number is the free stream Mach number at which:**

A. there is subsonic flow over all parts of the aeroplane.

B. the aeroplane has zero buffet margin.

C. there is supersonic flow over all parts of the aeroplane.

D. local supersonic flow first exists on any part of the aeroplane.

Câu 454 **Compared with an oblique shock wave at the same Mach number a normal shock wave has a**

A. higher total pressure.

B. higher total temperature.

C. higher loss in total pressure.

D. lower static temperature.

Câu 455 **The application of the area rule on aeroplane design will decrease the**

A. wave drag.

B. skin friction drag.

C. form drag.

D. induced drag.

Câu 456 **Which part of an aeroplane provides the greatest positive contribution to the static longitudinal stability ?**

A. The wing.

B. The engine.

C. The fuselage.

D. The horizontal tailplane.

Câu 457 **An aeroplane has a servo tab controlled elevator. What will happen if the elevator jams during flight?**

A. Pitch control sense is reversed.

B. The pitch control forces double.

C. Pitch control is lost.

D. The servo-tab now works as a negative trim-tab.

Câu 458 **What is the position of the elevator in relation to the trimmable horizontal stabiliser of a power assisted aeroplane that is in trim?**

A. At a forward CG the elevator is deflected upward and at an aft CG the elevator is deflected downward.

B. The position depends on speed, the position of slats and flaps and the position of the centre of gravity.

C. The elevator is always deflected slightly downwards in order to have sufficient remaining flare capability.

D. The elevator deflection (compared to the stabilizer position) is always zero.

Câu 459 **By what percentage does VA (EAS) alter when the aeroplane's weight decreases by 19%?**

A. 19% lower.

B. no change

C. 4.36% lower.

D. 10% lower.

Câu 460 **Which statement is correct about the gust load on an aeroplane, while all other factors of importance remain constant? I When the mass increases, the gust load increases. II When the altitude decreases, the gust load increases.**

A. I is incorrect, II is incorrect.

B. I is incorrect, II is correct.

C. I is correct, II is incorrect.

D. I is correct, II is correct.

Câu 461 **If you decrease the propeller pitch during a glide with idle-power at constant IAS the lift to drag ratio will:**

A. decrease and the rate of descent will decrease

B. decrease and the rate of descent will increase

C. increase and the rate of descent will increase

D. increase and the rate of descent will decrease

Câu 462 **Which statement, about an aeroplane entering ground effect at constant angle of attack, is correct?**

Câu 463 **The lift coefficient CL increases.**

Câu 464 **The induced drag coefficient CDi increases.**

A. 1) is correct, 2) is correct.

B. 1) is correct, 2) is incorrect.

C. 1) is incorrect, 2) is correct.

D. 1) is incorrect, 2) is incorrect.

Câu 465 **The mean camber line of an aerofoil section is:**

A. an arc of circle from the leading edge to the trailing edge.

B. a straight line from the leading edge to the trailing edge.

C. the profile of the upper surface of an aerofoil section.

D. a line from the leading to the trailing edge equidistant from the upper and lower surfaces.

Câu 466 **The span-wise flow is caused by the difference between the air pressure on top and beneath the wing and its direction of movement goes from:**

A. beneath to the top of the wing via the wing tip

B. the top to beneath the wing via the wing's trailing edge

C. the top to beneath the wing via the leading edge

D. beneath to the top of the wing via the trailing edge

Câu 467 **Which of the following wing planforms gives the highest local lift coefficient at the wing root?**

A. Positive angle of sweep

B. Elliptical

C. Rectangular

D. Tapered

Câu 468 **During an erect spin recovery:**

A. the ailerons are held in the neutral position

B. the control stick is moved side ways, against the angle of bank

C. the control stick is pulled to the most aft position

D. the control stick is moved side ways, in the direction of the angle of bank

Câu 469 **Which type of stall has the largest associated angle of attack?**

A. Deep stall

B. Low speed stall

C. Accelerated stall

D. Shock stall

Câu 470 **After the transition point between the laminar and turbulent boundary layer**

A. the boundary layer gets thinner and the speed increases

B. the mean speed and friction drag increases

C. the mean speed increases and the friction drag decreases

D. the boundary layer gets thicker and the speed decreases

Câu 471 **The wing of an aeroplane will never stall at low subsonic speeds as long as....**

A. there is a nose-down attitude

B. the angle of attack is smaller than the value at which the stall occurs

C. the IAS exceeds the power-on stall speed

D. the CAS exceeds the power-on stall speed

Câu 472 **One important advantage the turbulent boundary layer has over the laminar layer is that:**

A. skin friction drag is less

B. it has less tendency to separate from the surface

C. it is thinner

D. energy is less

Câu 473 **Assuming ISA conditions, which statement with respect to the climb is correct ?**

A. At constant Mach number the IAS increases

B. At constant TAS the Mach number decreases

C. At constant IAS the TAS decreases

D. At constant IAS the Mach number increases

Câu 474 **The critical Mach Number of an aeroplane can be increased by:**

A. vortex generators.

B. control deflection

C. dihedral of the wings.

D. sweep back of the wings.

Câu 475 **The Mach-trim function is installed on most commercial jets in order to minimize the adverse effects of:**

A. changes in the position of centre of pressure

B. compressibility effects on the stabilizer

C. increased drag due to shock wave formation

D. uncontrolled changes in stabilizer setting

Câu 476 **Tuck under will happen**

A. only at the critical Mach number.

B. only above the critical Mach number.

C. above or below the critical Mach number depending on the angle of attack.

D. only below the critical Mach number.

Câu 477 **On a un-swept wing, when the aerofoil is accelerated from subsonic to supersonic speeds, the aerodynamic centre:**

A. shifts aft by about 10%.

B. remains unchanged.

C. shifts from 25% to about 50% of the aerofoil chord.

D. slightly shifts forward.

Câu 478 **Which statement is correct for a side slip condition at constant speed and side slip angle, where the geometric dihedral of an aeroplane is increased ?**

A. the required lateral control force decreases.

B. the stick force per g decreases.

C. the required lateral control force increases.

D. the required lateral control force does not change.

Câu 479 **If the nose of an aeroplane yaws left, this causes:**

A. an increase in lift on the left wing.

B. a decrease in relative airspeed on the right wing.

C. a roll to the right.

D. a roll to the left.

Câu 480 **Which of the following statements is true?**

A. Flap extension in severe turbulence at constant speed moves the centre of pressure aft, which increases the structural limitation margins

B. By increasing the flap setting in severe turbulence at constant speed the stall speed will be reduced and the risk for exceeding the structural limits will be decreased

C. Flight in severe turbulence may lead to a stall and/or structural limitations being exceeded

D. Flap extension in severe turbulence at constant speed increases both the stall speed and the structural limitation margins

Câu 481 **If you increase the propeller pitch during a glide with idle-power at constant IAS the lift to drag ratio will**

A. decrease and the rate of descent will decrease.

B. increase and the rate of descent will increase.

C. decrease and the rate of descent will increase.

D. increase and the rate of descent will decrease.

Câu 482 **The difference between IAS and TAS will:**

A. decrease with increasing speed

B. increase with increasing air density

C. increase with decreasing temperature

D. decrease with decreasing altitude

Câu 483 **Bernoulli's law states: (note: rho is the mean sea level density under ISA conditions; pstat is static pressure; pdyn is dynamic pressure; ptot is total pressure)**

A. pdyn + 1/2 rho V2 = constant

B. ptot + 1/2 rho V2 = pstat

C. pstat + 1/2 rho V2 = constant

D. pstat + 1/2 rho TAS2 = constant

Câu 484 **The aerofoil polar is:**

A. the relation between the horizontal and the vertical speed

B. a graph of the relation between the lift coefficient and the drag coefficient

C. a graph, in which the thickness of the wing aerofoil is given as a function of the chord

D. a graph of the relation between the lift coefficient and the angle of attack

Câu 485 **Induced drag may be reduced by:**

A. an increase in the taper ratio of the wing

B. an increase in aspect ratio

C. the use of a wing tip with a much thinner aerofoil

D. a decrease of the aspect ratio

Câu 486 **Which of the following statements about boundary layers is correct?**

A. The turbulent boundary layer is thinner than the laminar boundary layer

B. The turbulent boundary layer has more kinetic energy than the laminar boundary layer

C. The turbulent boundary layer will separate more easily than the laminar boundary layer

D. The turbulent boundary layer gives a lower skin friction than the laminar boundary layer

Câu 487 **Which of the following statements about the stall of a straight wing aeroplane is correct?**

A. The nose down effect is the result of increasing downwash, due to flow separation

B. Just before the stall the aeroplane will be have an increased nose-down tendency

C. The horizontal tail will stall at a higher speed than the wing

D. Buffeting is the result of tailplane flow separation

Câu 488 **The most important problem of ice accretion on a transport aeroplane during flight is:**

A. blocking of control surfaces

B. increase in weight

C. reduction in CLmax

D. increase in drag

Câu 489 **Vortex generators:**

A. take kinetic energy out of the boundary layer to reduce separation

B. reduce the spanwise flow on swept wing

C. change the turbulent boundary layer into a laminar boundary layer

D. transfer energy from the free airflow into the boundary layer

Câu 490 **In order to maintain straight and level flight at a constant airspeed, whilst the flaps are being retracted, the angle of attack must be:**

A. increased or decreased depending upon the type of flap

B. increased

C. held constant

D. decreased

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