



- 1 Considering a positive cambered aerofoil, the pitching moment when $C_l=0$ is:
 - A infinite
 - B positive (nose-up).
 - C negative (nose-down).
 - D equal to zero.

- 2 The angle between the aeroplane longitudinal axis and the chord line is the:
 - A angle of incidence.
 - B glide path angle.
 - C angle of attack.
 - D climb path angle.

- 3 Which of the following wing planforms gives the highest local lift coefficient at the wing root ?
 - A Elliptical.
 - B Rectangular.
 - C Positive angle of sweep.
 - D Tapered.

- 4 An aeroplane maintains straight and level flight while the IAS is doubled. The change in lift coefficient will be:
 - A x 0.25
 - B x 2.0
 - C x 0.5
 - D x 4.0

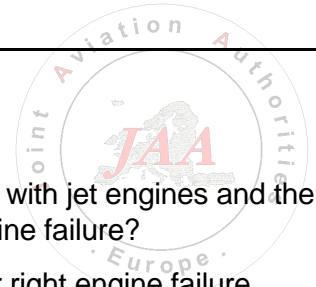
- 5 The stall speed increases, when: (all other factors of importance being constant)
 - A weight decreases.
 - B pulling out of a dive.
 - C spoilers are retracted.
 - D minor altitude changes occur e.g. 0-10.000 ft.

- 6 In which phase of the take-off is the aerodynamic effect of ice located on the wing leading edge most critical?
 - A The last part of the rotation.
 - B The take-off run.
 - C During climb with all engines operating.
 - D All phases of the take-off are equally critical.

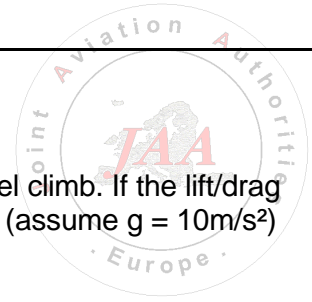
- 7 Assuming ISA conditions, which statement with respect to the climb is correct ?
 - A At constant TAS the Mach number decreases
 - B At constant Mach number the IAS increases
 - C At constant IAS the TAS decreases
 - D At constant IAS the Mach number increases



- 8 The speed range between high- and low speed buffet:
- A decreases during a descent at a constant Mach number.
 - B is always positive at Mach numbers below MMO.
 - C increases during a descent at a constant IAS.
 - D increases during climb.
- 9 When the air is passing through an expansion wave the static temperature will
- A decrease.
 - B increase.
 - C stay constant.
 - D decrease and beyond a certain Mach number start increasing again.
- 10 If the sum of all the moments in flight is not zero, the aeroplane will rotate about the:
- A centre of gravity.
 - B neutral point of the aeroplane.
 - C aerodynamic centre of the wing.
 - D centre of pressure of the wing.
- 11 Following a disturbance, an aeroplane oscillates about the lateral axis at a constant amplitude. The aeroplane is:
- A statically stable - dynamically neutral
 - B statically unstable - dynamically stable
 - C statically stable - dynamically unstable
 - D statically unstable - dynamically neutral
- 12 The cg of an aeroplane is in a fixed position forward of the neutral point. Speed changes cause a departure from the trimmed position. Which of the following statements about the stick force stability is correct?
- A An increase of 10kt from the trimmed position at low speed has more effect on the stick force than an increase of 10kt from the trimmed position at high speed.
 - B Increase of speed generates pull forces.
 - C Aeroplane nose up trim decreases the stick force stability.
 - D Stick force stability is not affected by trim.
- 13 Positive static lateral stability is the tendency of an aeroplane to:
- A roll to the right in the case of a positive sideslip angle (aeroplane nose to the right).
 - B roll to the left in the case of a positive sideslip angle (aeroplane nose to the left).
 - C roll to the left in a right turn.
 - D roll to the right in a right turn.
- 14 What is the effect of an aft shift of the centre of gravity on (1) static longitudinal stability and (2) the required control deflection for a given pitch change?
- A (1) reduces (2) increases
 - B (1) increases (2) increases
 - C (1) increases (2) reduces
 - D (1) reduces (2) reduces



- 15 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 yaw tendency for both aeroplanes regardless of left or right engine failure.
 - B More roll tendency for the propeller aeroplane.
 - C Less roll tendency for the propeller aeroplane.
 - D The same roll tendency for both aeroplanes.
- 16 An aeroplane has a servo tab controlled elevator. What will happen if the elevator jams during flight?
- A Pitch control is lost.
 - B Pitch control sense is reversed.
 - C The pitch control forces double.
 - D The servo-tab now works as a negative trim-tab.
- 17 Which statement about a jet transport aeroplane is correct during take-off with the cg at the forward limit and the trimmable horizontal stabiliser (THS) positioned at the maximum allowable aeroplane nose down position?
- A If the THS position is just within the limits of the green band, the take off warning system will be activated.
 - B The rotation will require extra stick force.
 - C Rotation will be normal.
 - D Early nose wheel raising will take place.
- 18 What can happen to the aeroplane structure flying at a speed just exceeding V_A ?
- A It may suffer permanent deformation if the elevator is fully deflected upwards
 - B It may break if the elevator is fully deflected upwards.
 - C It may suffer permanent deformation because the flight is performed at too large dynamic pressure.
 - D It will collapse if a turn is made.
- 19 Which definition of propeller parameters is correct?
- A Geometric pitch is the theoretical distance a propeller blade element would travel in a forward direction during one revolution.
 - B Blade angle is the angle between the blade chord line and the propeller axis.
 - C Angle of attack is the angle between the blade chord line and the propeller vertical plane.
 - D Critical tip velocity is the propeller speed at which flow separation first occurs at some part of the blade.
- 20 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.



- 21 A 50 ton twin engine aeroplane performs a straight, steady, wings level climb. If the lift/drag ratio is 12 and the thrust is 60 000N per engine, the climb gradient is: (assume $g = 10\text{m/s}^2$)
- A 3.7%.
 - B 15.7%.
 - C 12%.
 - D 24%.
- 22 An aeroplane performs a right turn, the slip indicator is left of neutral. One way to co-ordinate the turn is to apply:
- A more right rudder.
 - B more left rudder.
 - C a higher turn-rate.
 - D less right bank.
- 23 The speed for minimum glide angle occurs at an angle of attack that corresponds to: (assume zero thrust; \wedge ... denotes power of ...)
- A $(CL/CD^2)\text{max}$
 - B $(CL^3/CD^2)\text{max}$
 - C $(CL/CD)\text{max}$
 - D $CL\text{max}$

Sample Questions