**AERODYNAMICS Marks - 40**

Q1. The C of P is the point where.

**A. the lift can be said to act.**

B. the three axis of rotation meet.

C. all the forces on an aircraft act.

Q2. When an aircraft experiences induced drag.

A. air flows under the wing span wise towards the root and on top of the wing span wise towards the tip.

B. Neither a) or b) since induced drag does not caused by span wise flow.

**C. air flows under the wing span wise towards the tip and on top of the wing span wise towards the root**.

Q3. Which of the following is true?

**A. Lift acts at vertically right angles to the relative airflow and weight acts down**.

B. Lift acts at right angles to the wing chord line and weight acts vertically down.

C. Lift acts at right angles to the relative air flow and weight acts at right angles to the aircraft centre line.

Q4. As the angle of attack of an airfoil increases the centre of pressure.

A. remains stationary.

B. moves aft.

**C**. **moves forward**.

Q5. Vapour trails from the wingtips of an aircraft in flight are caused by.

**A. low pressure above the wing and high pressure below the wing causing vortices.**

B. low pressure above the wing and high pressure below the wing causing a temperature rise.

C. high pressure above the wing and low pressure below the wing causing vortices.

Q6. The chord line of a wing is a line that runs from.

**A. the centre of the leading edge of the wing to the trailing edge.**

B. half way between the upper and lower surface of the wing.

C. One wing tip to the other wing tip.

Q7. A high aspect ratio wing will give.

**A. high profile and low induced drag.**

B. low profile and high induced drag.

C. low profile and low induced drag.

Q8. Aerofoil efficiency is defined by.

**A. lift over drag.**

B. lift over weight.

C. drag over lift.

Q9. The relationship between induced drag and airspeed is, induced drag is.

A. directly proportional to the square of the speed.

B. directly proportional to speed.

**C. inversely proportional to the square of the speed.**

Q10. What is Boundary Layer?

A. Separated layer of air forming a boundary at the leading edge.

**B. Sluggish low energy air that sticks to the wing surface and gradually gets faster until it joins the free stream flow of air**.

C. Turbulent air moving from the leading edge to trailing edge.

Q11. As air flows over the upper cambered surface of an aerofoil, what happens to velocity and pressure?

A. Velocity increases, pressure increases.

**B. Velocity increases, pressure decreases.**

C. Velocity decreases, pressure decreases.

Q12. The 'wing setting angle' is commonly known as.

A. angle of dihedral.

**B. angle of incidence.**

C. angle of attack.

Q13. As the angle of attack decreases, what happens to the centre of pressure?

**A**. **It moves rearwards**.

B. Centre of pressure is not affected by angle of attack decrease.

C. It moves forward.

Q14. Which of the following types of drag increases as the aircraft gains altitude?

A. Interference drag.

B. Parasite drag.

**C. Induced drag.**

Q15. The upper part of the wing in comparison to the lower.

A. develops less lift.

B. develops the same lift.

**C**. **develops more lift**.

Q16. 38. An aspect ratio of 8: 1 would mean.

**A. span 64, mean chord 8.**

B. mean chord 64, span 8.

C. span squared 64, chord 8.

Q17. QFE is.

**A. airfield pressure.**

B. difference between sea level and airfield pressure.

C. sea level pressure.

Q18. For any given speed, a decrease in aircraft weight, the induced drag will.

**A. decrease.**

B. remain the same.

C. increase.

Q19. The amount of lift generated by a wing is.

A. Greatest at the tip.

B. Constant along the span.

**C. Greatest at the root.**

Q20. Induced Drag is.

**A. greatest towards the tip and downwash decreases from tip to root.**

B. greatest towards the wing tip and downwash is greatest towards the root.

C. greatest towards the wing root and downwash is greatest at the tip.

Q21. As the angle of attack of a wing is increased in level flight.

A. the C of G moves aft and the C of P forward.

**B. the C of P and transition point move forward**.

C. the C of P moves forward and the stagnation point aft over the upper surface.

Q22. The optimum angle of attack of an aerofoil is the angle at which.

A. the aerofoil produces maximum lift.

B. the aerofoil produces zero lift.

**C. the highest lift/drag ratio is produced**.

Q23. 51. If the weight of an aircraft is increased, the induced drag at a given speed.

**A. will increase.**

B. will decrease.

C. will remain the same.

Q24. The transition point on a wing is the point where.

**A. the boundary layer flow changes from laminar to turbulent.**

B. the flow divides to pass above and below the wing.

C. the flow separates from the wing surface.

Q25. A laminar boundary layer will produce.

A. more skin friction drag than a turbulent one.

B. the same skin friction drag as a turbulent one.

**C. less skin friction drag than a turbulent one.**

Q26. The amount of thrust produced by a jet engine or a propeller can be calculated using.

A. Newton’s 3rd law.

**B. Newton’s 2nd law.**

C. Newton’s 1st law.

Q27. The concept of thrust is explained by.

A. Bernoulli’s theorem.

**B. Newton’s 3rd law.**

C. Newton’s 1st law.

Q28. What is the force that tends to pull an aircraft down towards the earth?

A. Thrust.

**B. Weight.**

C. Drag.

Q29. The angle at which the chord line of the aerofoil is presented to the airflow is known as.

**A. angle of attack.**

B. resultant.

C. angle of incidence.

Q30. The imaginary straight line which passes through an aerofoil section from leading edge to trailing edge is called.

**A. the chord line.**

B. the direction of relative airflow.

C. centre of pressure.

Q31. What is the angle between the chord line of the wing, and the longitudinal axis of the aircraft, known as?

A. Angle of dihedral.

B. Angle of attack.

**C. Angle of incidence.**

Q32. Wing tip vortices create a type of drag known as.

A. form drag.

B. profile drag.

**C. induced drag.**

Q33. What type of drag, depends on the smoothness of the body, and surface area over which the air flows?

A. Form drag.

B. Parasite drag.

**C. Skin friction drag.**

Q34. When an aircraft stalls.

A. lift increases and drag decreases.

B. lift and drag increase.

**C. lift decreases and drag increases.**

Q35. Upward and outward inclination of a main plane is termed.

**A. dihedral.**

B. sweep.

C. stagger.

Q36. The stagnation point on an aerofoil is the point where.

A. the boundary layer changes from laminar to turbulent.

B. the suction pressure reaches a maximum.

**C. the airflow is brought completely to rest.**

Q37. Aspect ratio is given by the formula.

A. Mean Chord / Span.

**B. Span2 / Area.**

C. Span2 / Mean Chord.

Q38. The thickness/chord ratio of the wing is also known as.

**A. fineness ratio.**

B. mean chord ratio.

C. aspect ratio.

Q39. The angle of attack of a wing is increased in flight, the.

A. C of P will move aft.

**B. C of P will move forward.**

C. C of G will move aft.

Q40. Helicopter rotor blades create lift by.

A. pushing the air down.

B. working like a screw.

**C. creating low pressure above the blades.**