

- Q.22 Classify wing types according to location.
 Q.23 What are the types of turbo engines?
 Q.24 What are the various types of drag inhibiting devices?
 Q.25 Show how pressure and density varies with altitude with a neat graph.
 Q.26 Calculate the temperature at 25 km altitude.
 Q.27 Differentiate laminar and turbulent flow.
 Q.28 Show how pressure and density varies with altitude with a neat graph.
 Q.29 State Bernoulli's principle. What is its application in Venture Tube?
 Q.30 Locate the Aerodynamic center for different airfoils.
 Q.31 What is stability? Give its types?
 Q.32 What is the basic operating principle of a piston engine?
 Q.33 Explain the function of flaps, winglets and slats.
 Q.34 Explain the stability of an aircraft, after disturbance with its types.
 Q.35 Define various High lift devices and explain their operation.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
 Q.36 Classify the different types of drag.
 Q.37 Explain the functioning of rotorcraft in detail.
 Q.38 What is the effect of Engine power on performance of aircraft?

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SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 Which of the following is correct?
 a) Aircraft static longitudinal stability will be dependent upon the arrangement of different components
 b) Lift is always same as weight
 c) Static stability is similar to dynamic stability
 d) All the aircrafts are statistically stable
- Q.2 Bernoulli's equation is applicable only for _____
 a) Irrotational flow
 b) Viscous flow
 c) Inviscid, incompressible flow
 d) Compressible flow
- Q.3 Define drag curve
 a) Drag will increase rapidly at particular degree of angle of attack and overcomes the lift curve at particular degree of angle of attack
 b) Drag curve will increase at particular degree of angle of attack and lift curve increasing at particular degree of angle of attack

- c) Drag curve remains constant and lift curve will be increasing
 - d) Lift curve remains constant and drag curve will be increasing
- Q.4 How is lift calculated?
- a) Perpendicular to the direction of motion
 - b) Parallel to the direction of motion
 - c) Opposite to the direction of motion
 - d) Relative to the direction of motion
- Q.5 The point where the fluid comes to rest is called as _____
- a) Rest Point b) Stagnation Point
 - c) Viscous Point d) Boundary layer point
- Q.6 The smoke particles coming out from the chimney falls under _____
- a) Streamline b) Streakline
 - c) Path line d) Position line
- Q.7 How lift and drag ratio can be expressed in a relation?
- a) Dividing the lift coefficient by the drag coefficient
 - b) Dividing the lift coefficient by the moment coefficient
 - c) Dividing the drag coefficient by the lift coefficient
 - d) Dividing the drag coefficient by the moment coefficient
- Q.8 Which of the following is incorrect?

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- a) Uncambered wing lift curve is not same as that of the Cambered
 - b) Stick free and stick fixed are same
 - c) Lift is not always same as weight
 - d) Thrust required is not always same power
- Q.9 Which type of Drag is dependent on Lift?
- a) Profile Drag b) Induced Drag
 - c) Wave Drag d) None of the above
- Q.10 How propeller creates a thrust force?
- a) With transmitted power
 - b) With own power
 - c) With the existing power
 - d) With supplied power

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 What is the use of thin airfoils?
- Q.12 Give two examples of Secondary control surface
- Q.13 What are the forces acting on aircraft during gliding?
- Q.14 What is the Mach range for Transonic flow?
- Q.15 Where are vortex generators used?
- Q.16 How does a rotor craft work?
- Q.17 Give an example of primary control surface
- Q.18 What is static and dynamic pressure?
- Q.19 What is the purpose of elevator?
- Q.20 List some power driven aircrafts?

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 What is stalling speed ? Draw a plot explaining the impact of stall

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