

- Q.27 Give an example of hydraulic system used in aircraft? How does it work?
- Q.28 Write short notes on: a. Assisted Take off b. High lift Devices.
- Q.29 What is meant by term load factor?
- Q.30 Explain in detail with the help of figure lateral static stability.
- Q.31 What is Aileron? What is its use and how does it help in aircraft maneuver?
- Q.32 Name the aerodynamic forces acting on aircraft. Also Draw the forces diagram for an aircraft in climb.
- Q.33 Explain the different parts of an Airfoil of the wing.
- Q.34 Explain about the basic components of Piston Engine.
- Q.35 Explain in detail the functioning of temperature control system.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Briefly describe about the various types of drag acting on aircraft.
- Q.37 Explain the detailed functioning of components of a Piston Prop Engine.
- Q.38 a) Derive an equation of Aircraft motion.
b) Explain the significance of PR and PA curve and show its variation of with altitude.

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Subject:- Introduction to Aeronautics

Time : 3Hrs.

M.M. : 100

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1=10)
- Q.1 Which of the following is a correct condition when the angle of attack is beyond stalling angle?
a) Drag is greater than lift
b) Weight is less than lift
c) Drag is less than lift
d) Weight is less than thrust
- Q.2 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.3 What is the graph that is represented in the airfoil section?
a) Lift-moment ratio
b) Coefficient of lift-coefficient of drag ratio
c) Angle of attack-drag into
d) Lift-angle of attack ratio
- Q.4 Purpose of leading edge is to _____
a) Allow the wing to operate at high angle of attack

- b) Allow the wing to operate at low angle of attack
 c) Allow the wing to operate at stall condition
 d) Allow the wing to operate in level condition
- Q.5 The lift and drag coefficient are not primarily a function of _____
 a) Vehicle Configuration
 b) Flight Match Number
 c) Angle of attack
 d) Vehicle mass
- Q.6 The cross-sectional shape of wing is called _____
 a) Airfoil b) Circle
 c) Camber d) Chord
- Q.7 If an airfoil is operating at Match 1.1, then it is working in _____
 a) Transonic Range b) Supersonic Range
 c) Subsonic Range d) Hypersonic Range
- Q.8 What is the basic assumption taken in formulating equation of motion?
 a) All the engines will operate at equal gross thrust
 b) All the engines do not operate at equal gross thrust
 c) All the engines will operate at equal gross drag
 d) All the engines do not operate at equal gross drag
- Q.9 If the aircraft has a power -producing engine which have driven propellers, then the power is to be converted to thrust to formulate the equation of motion.
 a) True b) False
- Q.10 What is meant by stalling angle of attack?
 a) The angle at which we get maximum lift
 b) The angle at which we get maximum drag
 c) The angle at which we get minimum lift
 d) The angle at which we get minimum drag

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SECTION-B

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

- Q.11 How does L/D ratio effect flight performance?
 Q.12 How does a Hovercraft work?
 Q.13 What is meant by air worthiness?
 Q.14 Give an example of a pneumatic system in an aircraft.
 Q.15 Give an example of gyro-based Instrument.
 Q.16 What is primary control?
 Q.17 Define Aerodynamic Center.
 Q.18 The biggest drawback in Rajmet Engine is _____
 Q.19 What is Rib?
 Q.20 What is wing loading?

SECTION-C

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

- Q.21 Briefly describe about three primary controls for an aircraft?
 Q.22 Explain the longitudinal, Lateral an Vertical Axis in an aircraft?
 Q.23 How does thrust vary in various stages of climb?
 Q.24 Write in brief about three engine performance measuring instruments.
 Q.25 What are different Air safety requirements and standards?
 Q.26 What are the stresses acting on tail and fuselage joints?

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