

## **SECTION-C**

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

- Q.21 Describe primary controls of an aircraft?  
Q.22 Explain the working of Ramjet engine.  
Q.23 Classify heavier than air aircrafts.  
Q.24 Draw pressure distribution curve over an airfoil.  
Q.25 What are the different air safety requirements?  
Q.26 Draw shear force diagram of a rectangular wing?  
Q.27 Describe an example of hydraulic system used in aircraft?  
Q.28 Discuss the statement "Every gram counts".  
Q.29 Discuss V-n diagram.  
Q.30 Draw equilibrium of forces on wing and tail.  
Q.31 Describe the function of an Aileron?  
Q.32 Enumerate the aerodynamic forces acting on aircraft.  
Q.33 Explain prop fan engine working.  
Q.34 Explain about the basic components of Piston Engine  
Q.35 Explain in detail the thermodynamic cycle of gas turbine engine.

## **SECTION-D**

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Describe the working of rate of climb indicator.  
What are the other pitot based instrument used?  
Q.37 Explain the detailed functioning of aircraft electric system and autopilot.  
Q.38 Discuss icing and deicing system of an aircraft.  
Write the basic steps in aircraft design.

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Roll No. ....

**3rd Sem./Branch : Aircraft Maintenance Engg**

**Subject:- Introduction to Aeronautics**

Time : 3Hrs.

M.M. : 100

## **SECTION-A**

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

- Q.1 Which aircraft type is typically used for military combat mission ?  
a) Cargo plane      b) Helicopter  
c) Fighter jet      d) Commercial airline
- Q.2 Which component of a hydraulic system is responsible for converting hydraulic energy into mechanical motion?  
a) Accumulator      b) Actuator  
c) Reservoir      d) Filter
- Q.3 Which component of a pneumatic system is responsible for removing moisture and contaminants from the air before it enters the system?  
a) Valves      b) Filters  
c) Capsules      d) Bellow

- Q.4 What is the primary function of the cooling system in a piston engine?
- To increase engine speed
  - To reduce friction between moving parts
  - To maintain an optimal operating temperature and prevent overheating
  - To enhance fuel efficiency
- Q.5 Why are nickel-based superalloys preferred for high-temperature components in gas turbine engines?
- They are lightweight
  - They have high thermal conductivity
  - They exhibit excellent strength at high temperatures
  - They are inexpensive
- Q.6 Which construction approach involves forming the entire structure of an aircraft as a single shell, providing strength and rigidity without internal framework?
- Semi-monocoque construction
  - Stressed construction
  - Composite construction
  - Monocoque construction
- Q.7 If an airfoil is operating at Mach 1.1, then it is working in \_\_\_\_\_
- Transonic range
  - Supersonic range
  - Subsonic range
  - Hypersonic range

- Q.8 What type of wing design features a single main spar and no external bracing or support structures?
- Monocoque wing
  - Truss wing
  - Cantilever wing
  - Semi-monocoque wing
- Q.9 The pitot tube is used to measure
- Velocity at stagnation point
  - Stagnation pressure
  - Static pressure
  - Dynamic pressure
- Q.10 Which regulatory body issues Civil Airworthiness Requirements (CAR) in India?
- Federal Aviation Administration (FAA)
  - European Aviation Safety Agency (EASA)
  - Directorate General of Civil Aviation (DGCA)
  - International Civil Aviation Organization (ICAO)

## SECTION-B

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

- Q.11 What do you mean by air worthiness?
- Q.12 How de-icing s done?
- Q.13 What is a Hovercraft?
- Q.14 Name one pneumatic system task in an aircraft.
- Q.15 What is the purpose of gyro?
- Q.16 What is the purpose of leading edge flap?
- Q.17 What is special about Aerodynamic Centre
- Q.18 What is the first estimation taken for aircraft design?
- Q.19 Name fuselage components.
- Q.20 What are various engines used in aircrafts?