

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**Diploma Engineering, Mid semester Examination**

**Semester: 5<sup>th</sup>**  
**Subject Code: (03613303)**  
**Subject Name: (Aircraft Structure)**

**Date: (08/08/2022)**  
**Time: (1hr: 30min)**  
**Total Marks: 40**

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**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

- Q.1 Answer any six out of Ten. (2 Marks Each) (12)**
1. What are major stresses acting on Aircraft?
  2. Define Elasticity?
  3. Write down Properties of Material.
  4. What are Metallic materials? Give Example.
  5. Define Shear Stress and Torsion.
  6. What is Monospar wing design?
  7. Write down Airframe structure for fixed wing aircraft.
  8. Define Spars and Ribs in wing structure.
  9. Define Ductility and Plasticity.
  10. Define Nacelles and Empennage.
- Q.2 A) Explain Multispar and Box Beam design of Wing. (03)**
- OR**
- A) Write down short note on Truss type Fuselage Structure. (03)
- B) Explain the Advantages of Semi Monocoque structure over Monocoque structure (03)
- OR**
- B) Explain Aluminum Alloys. (03)
- C) Write down short note on Composite and carbon fiber materials. (04)
- OR**
- C) Explain Fuselage. Semi Monocoque. (04)
- D) Explain Flight Control Surfaces along with its location and functions. (04)
- Q.3 A) Write Short note on Pressurization of Fuselage. (03)**
- B) Write Short note on Wing Structure. (03)
- C) Write Short note on Transparent Plastic and Reinforced Plastic. (04)
- D) Explain Landing Gear Structure With neat Sketch. (04)