

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem-III Remedial Examination March 2010****Subject code: 130104****Subject Name: Introduction of Profession****Date: 12 / 03 / 2010****Time: 11.00 am – 01.30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define: lift, drag, pressure, co-efficient pressure and camber. **05**
 (b) What do you understand by AVIONICS? **04**
 (c) Classify the jet propulsion engines. **05**
- Q.2** (a) Why hollow sections are preferred for aircraft structures? **07**
 (b) With help of neat sketch explain the two stroke reciprocating engine. **07**
- OR**
- (b) With help of neat sketch explain working of Turbo-jet engine. **07**
- Q.3** (a) Write advantages of jet engines over reciprocating engines. **07**
 (b) At 12 km in standard atmosphere pressure, density and temperature are $1.9399 \times 10^4 \text{ N/m}^2$, $3.1194 \times 10^{-1} \text{ kg/ m}^3$ and 216.66 K respectively. Using these values calculate the standard atmosphere values of pressure, density and temperature at an altitude of 18 km. **07**
- OR**
- Q.3** (a) With help of neat sketch explain working of ramjet engine. **07**
 (b) Explain working principle of pitot tube and pitot static tube with help of suitable diagram. **07**
- Q.4** (a) Explain functions of rib, spar and stringers as a structure elements of wing structure. **07**
 (b) Explain different elements of an Instrument Landing System. **04**
 (c) Briefly explain the silent features of VHF Omni range (VOR). **03**
- OR**
- Q.4** (a) Evaluate: I-section is more suitable for aircraft structures. **04**
 (b) Explain monocoque and semi-monocoque constructions. **03**
 (c) What are the operational facilities provided by Air-Traffic Management service at an airfield? **07**
- Q.5** (a) With suitable sketch explain Aerofoil Nomenclature. Also explain about pitching moment. **08**
 (b) With help of sketch explain about monocoque and semi-monocoque constructions. **06**
- OR**
- Q.5** (a) Explain pressure, temperature and density altitudes. **06**
 (b) What are the common properties of aircraft materials? What are the forces acting on fuselage? **08**
