

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 130104****Date: 01-01-2015****Subject Name: Introduction to Profession****Time: 02.30 pm - 05.00 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) Differentiate airfoil of low speed, high speed and supersonic speed aircraft with appropriate figure. **07**  
(b) How atmosphere affects aircraft flight? What is standard atmosphere? Explain briefly. **07**
- Q.2** (a) Describe aircraft flight axis operation when primary controls are in action. **07**  
(b) Define Angle of Attack, critical angle of attack and stalling with figure. Which is the best angle of attack for generating maximum lift. Draw Angle of Attack vs lift graph. **07**
- OR**
- (b) Describe load factor, limit load, ultimate load and stresses imposed on aircraft. **07**
- Q.3** (a) Draw a figure of transport aircraft and classify its parts briefly with usage. **07**  
(b) Explain transport aircraft tail plane and controls structure in details. **07**
- OR**
- Q.3** (a) Explain operation of all primary controls during flight with sketch. **07**  
(b) Which are the parts joined on fuselage. Explain transport aircraft fuselage structure with main components and integrated fuel tank. **07**
- Q.4** (a) Why crew cabin and passenger compartments are pressurized? Explain aircraft loads and landing load. **07**  
(b) What do you understand by jet turbine engine? Explain turboprop jet engine with figure. **07**
- OR**
- Q.4** (a) Explain cooling systems and operation of four stroke piston engine with figure. Is it a IC or EC engine? **07**  
(b) Differentiate Primary and Secondary Radars with their necessity **07**
- Q.5** (a) Explain operation of DME with figure. **07**  
(b) Explain stages of aircraft flight starting from takeoff to parking. **07**
- OR**
- Q.5** (a) Give introductory note on Air born system in brief. **07**  
(b) Explain configuration and types of landing gears installed on different types of aircrafts. **07**

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