

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**B. E. Sem - IV Examination - June- 2011**

**Subject code: 140104 Subject Name: Fundamentals of Aeronautics**

**Date: 13/06/2011**

**Total Marks: 70**

**Time: 10.30 am – 01.00 pm**

**Instructions:**

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

- Q.1 (a) What kinds of engines are used in aircrafts? 07  
(b) Define Aerodynamics. How is it helpful to understand principle of aircrafts? 07
- Q.2 (a) Draw “propeller geometry”. What four types of propellers are used in an aircrafts? 07  
(b) Differentiate between Ramjet and rocket engine. 07
- OR**
- (b) Draw and explain geometry of wing cross section with neat sketch? 07
- Q.3 (a) What kinds of landing gears are used in aircrafts? What are the main functions of main wheel and nose wheel? 07  
(b) How can an aircraft be maintained in air by wings? What are the conditions of straight and level flight? 07
- OR**
- Q.3 (a) Explain Ram Jet engine with neat sketch. 07  
(b) Give a short note on “absolute ceiling” and “service ceiling” of aircraft. 07
- Q.4 (a) Why slow aircrafts are equipped with propellers and fast aircrafts are equipped with Jet engines? Explain briefly. 07  
(b) What do you understand by propulsion system? How does it helpful to maintain altitude of aircraft? 07
- OR**
- Q.4 (a) Explain gas turbine cycle with turbofan engine. 07  
(b) Differentiate between jet engine and IC engine briefly. 07
- Q.5 (a) Explain function of liquid propellant rocket engine with neat sketch. 07  
(b) Explain turbojet engine? How turbofan engine is different than it? 07
- OR**
- Q.5 (a) Differentiate between liquid and solid propellant rocket engine? 07  
(b) What are the important members of conventional wing structure? Explain with neat sketch. 07

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