

GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012

Subject code: 140103**Date: 01/01/2013****Subject Name: Aircraft Systems and Instruments****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

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

Q.1 (a) Which are power plant instruments in the aircraft? Give the used in significance of each Instrument. Which type of sensors is each instrument **07**

(b) What do you understand by Head up display? Explain with figure and examples. What is “Basic T flight instrument grouping” explain with figure. **07**

Q.2 (a) What are the properties of gyroscope? With the help of rough sketch explain different parts of a gyroscope? What is meant by rigidity and precession? What are limitations of a free gyroscope? **07**

(b) Explain power plant instrument grouping with figure for four engine aircraft in details. **07**

OR

(b) Why heaters are provided in pitot-static (probe) head with figure of D.C. circuit. Explain the circuit. **07**

Q.3 (a) What is flight management system? What are its advantages? With the help of diagram explain Flight Management System & data interfacing. **07**

(b) Explain pneumatic type altimeter, its operations and construction with figure. **07**

OR

Q.3 (a) What is direction indicator? With the help of simple diagram describe a direction indicator. How do we control drift, & do gimbal ring balancing? **07**

(b) What is fire protection system? With the help of diagram explain any fire protection system used in modern aircraft. **07**

Q.4 (a) Which are different types of turbine engines? With the help of rough sketch explain anyone of them. **07**

(b) Describe RPM indicator using principle of “Generator and Indicator system” with figure. **07**

OR

Q.4 (a) Explain different types of shimmy dampers and function of dampers. **07**

Q.4 (b) Explain EGT operation. Explain its sensor with principle and types with figures. **07**

Q.5 (a) Briefly describe different types of gas turbine starters, show complete circuit and starter function of generator system. **07**

(b) Explain pneumatic type horizon gyroscope with operation and figure. **07**

OR

Q.5 (a) Describe icing effect on aircraft flight with figure and suggest different methods used for prevention. **07**

(b) Explain aircraft communication system and describe HF, VHF with figure showing operation and navigation equipment. **07**
