

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE SEM-IV Examination-Nov/Dec-2011

Subject code: 140103

Date: 05/12/2011

Subject Name: Aircraft Systems & Instruments

Time: 02.30 pm -5.00 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) Why do we need instruments in the aircraft? Which are six basic flight instruments . . . 07
. How are they laid in the cockpit and why?
- (b) How do measure the quantity of fuel in the aircraft? With the help of a sketch explain 07
any fuel quantity measurement system.

- Q.2 (a) What is the purpose of air data computer? What are it's components or sub-systems? 07
What are it's inputs and outputs? Which all systems get input from ADC?
- (b) What is an accelerometer? How do we obtain velocity and distance traveled? With 07
the help of sketch explain any accelerometer.

OR

- (b) What is angle of attack sensor? How does it work? Explain with the help of a simple 07
diagram. How is the information provided in the cockpit?

- Q.3 (a) What is a machmeter? How does it work? Explain with the help of a simple sketch. 07
- (b) How do we use gyroscope for direction finding? What are it's properties? With a 07
sketch explain any direction indicator.

OR

- Q.3 (a) What is a Turn & Bank indicator? What are it's components? How do these system 07
work? Explain with the help of a simple sketch.
- (b) Why do we require paralleling of electrical power generators? Why is synchronization 07
of generators required? Explain with the help of a sketch.

- Q.4 (a) What all indicating and warning systems are provided in the aircraft? Which are 07
different circuit protective devices? Explain them briefly.
- (b) Which are different occasions of starting a turbine engine? What precautions are to 07
be taken? Explain the starting procedure.

OR

- Q.4 (a) What is a tachometer ? How is it used in the measuring instruments? Explain with the 07
help of simple diagram.
- (b) In which all the locations in the aircraft fire detection system are installed? What is 07
the principle of their working? With the help of a diagram explain any fire protection
system.

- Q.5 (a) What all ground equipment is required in the maintenance and operation of the 07
aircraft? Explain their use briefly.
- (b) What is the purpose of hydraulic system in the aircraft? How and where is it used? 07
What are different elements of a hydraulic system? Explain with the help of a simple
diagram.

OR

- Q.5 (a) How do we maintain hydraulic system in the aircraft? 07
- (b) What is flight management system? What are it's advantages? With a brief sketch 07
explain FMS and data interfacing.
