

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI • EXAMINATION – SUMMER 2013

Subject Code: 160106**Date: 04-06-2013****Subject Name: Avionics****Time: 10.30 am - 01.00 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) In which way radar has been helpful in flying of aircraft? How do we increase range (distance) capability of the radar? What are blind zones in the radar pick up? How do we suppress side lobes (SLS)? **07**

(b) What are secondary radars? What is their application in aviation? What are their advantages over primary radar? **07**

Q.2 (a) What are radio (RADAR) altimeters? How do we increase accuracy of these radars? **07**

(b) What is Ground Proximity Warning System (GPWS)? Which are different type of Enhanced GPWS (EGPWS)? **OR** **07**

(b) With the help of diagram explain any radar display i Plan Position Indicator (PPI). Indicate an aircraft at range 50 Kms and azimuth 090. How can we improve range and azimuth (angle) resolution? **07**

Q.3 (a) Explain the organization of a Long Range Navigation (LORAN) system. How do we maintain the accuracy? **07**

(b) What is Traffic Collision Avoidance System (TCAS)? Which are different types? Explain any one of them. **07**

OR

Q.3 (a) How do accelerometers and gyroscopes provide navigation information to the aircraft in inertial navigation system (INS)? Why is it specially suitable for military aircrafts? **07**

(b) What is Doppler navigation system? Draw rough sketch of a Doppler radar. **07**

Q.4 (a) Who has developed Global Positioning System? What is the difference between the facilities available to US defence services and others? Briefly explain the system. **07**

(b) How satellite communication (SATCOM) system has been made more efficient & disturbance free? Briefly explain the system. **07**

OR

Q.4 (a) What are the advantages of Liquid Crystal Display (LCD) over Cathode Ray Tube (CRT) display? **07**

(b) What is Fly By Wire (FBW) flight control system? What are its advantages over mechanical, and hydraulic control systems? **07**

Q.5 (a) Why is digital communication becoming more and more popular in aircraft. How networking has been used to share the resources and increase speed of operation. **07**

(b) Flight management system is the key word in the modern avionics? How does it help the crew manage the flight most efficiently. With the help of sketch describe any Flight Management System. **07**

OR

Q.5 (a) What is meant by avionics architecture? How the computers have been used to have different structures? Which are commonly used structures? **07**

(b) What is Airborne Early Warning system (AEW)? What are its advantages and disadvantages over conventional systems of electronic warfare? **07**