

GUJARAT TECHNOLOGICAL UNIVERSITY**B E Sem-VI Examination May 2011****Subject code: 160106****Subject Name: AVIONICS****Date: 24/05/2011****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) What is the importance of avionics in the present day aircrafts? As an avionics incharge in an airline, which all systems and sub-systems are you expected to look after? **07**
- (b) What is TACAN? How is it integrated with VOR so as to be called VORTAC? Which all special services are provided to military aircrafts? **07**

- Q.2** (a) What is Global Positioning System? How the system comprises of a number of satellites? How do we ensure that information is available all around the globe, at all times? **07**
- (b) How do LF, HF & VHF electro-magnetic waves travel in the atmosphere? What are their relative advantages and disadvantages for ground to air communication? **07**

OR

- (b) What is instrument landing system? Why the need arose for ILS? With the help of rough sketches describe the radiation pattern (lobe) used in different sub-systems of an ILS. **07**

- Q.3** (a) What is microwave landing system? How does it differ from ILS? With the help of simple diagrams explain functioning of the MLS. **07**
- (b) What are the advantages and disadvantages of modern displays used in the cockpit? Explain any display in detail? **07**

OR

- Q.3** (a) How do we ensure that aircrafts do not hit the ground or other obstacles while flying low? How do we ensure that radar altimeter does not give wrong height? **07**
- (b) Briefly describe a VOR? What are advantages of VOR over NDB? How do we reduce site errors in a direction finding station? **07**

- Q.4** (a) For use of a VOR station on ground, what is the corresponding equipment in the aircraft? Explain it with a simple diagram. **07**
- (b) What is a radar? What is the effect of “radiation power”, “radiation pattern”, “sensitivity”, “radiation frequency”, PW, & PRF on the operation of the radar? **07**

OR

- Q.4** (a) What is a secondary radar? Explain any application. **07**
- (b) Explain a system to ensure that aircrafts do not hit each other during flight? **07**

- Q.5** (a) What is airborne weather radar? How does it differ from normal radars? Explain with the help of a rough sketch. **07**
- (b) With the help of simple diagram explain DME. What equipment is available on the ground and in the aircraft? **07**

OR

- Q.5** (a) Write the brief history of evolution of avionics. What are the different architectures that have been used in avionics? **07**
- (b) What is flight management system in a modern aircraft? Explain with the help of a simple diagram. **07**
