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06EC662

**Sixth Semester B.E. Degree Examination, June/July 2011**

**Satellite Communication**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting at least TWO questions from each part.**

**PART – A**

- 1 a. Explain frequency allocations for a satellite. (06 Marks)  
b. With suitable diagram explain various definitions of terms used to describe the position of the orbit with respect to earth. (10 Marks)  
c. Calculate the apogee and perigee heights for the orbital parameters given  $e = 0.0011501$  and  $a = 7192.3$  km. Assume a mean earth radius of 6371 km. (04 Marks)
- 2 a. Explain what are orbit perturbations that take place because of non-sphericity nature of earth. (07 Marks)  
b. Derive an expression for geostationary height. (03 Marks)  
c. Explain in detail the earth eclipse of satellite and ~~sun~~ transit outage. (10 Marks)
- 3 a. Explain what is meant by EIRP. A satellite downlink at 12 GHz operates with a transmit power of 6W and an antenna gain of 48.2dB. Calculate the EIRP in dBW. (08 Marks)  
b. List the losses suffered in a satellite link? Explain each of them. (12 Marks)
- 4 a. What is meant by satellite attitude? Explain two terms of attitude control. (06 Marks)  
b. Explain momentum wheel sterilization of satellite. (06 Marks)  
c. With a neat block diagram explain TT and C subsystem. (08 Marks)

**PART – B**

- 5 a. Explain with the help of a net block diagram of home terminal for DBS TV/FM reception. (07 Marks)  
b. What is master antenna TV system? With the help of a diagram describe an arrangement for MATV system. (06 Marks)  
c. With a neat illustration explain the basic concept of TDMA. (07 Marks)
- 6 a. Explain working of spade system. (08 Marks)  
b. Explain the frame and burst formats for a TDMA system. (12 Marks)
- 7 a. Explain frequency and polarization for direct broadcast satellite services. (08 Marks)  
b. Explain in brief different types of satellite mobile services. (12 Marks)
- 8 Write notes on : (20 Marks)
  - a. GPS
  - b. CATV
  - c. Sun synchronous orbit
  - d. Preassigned FDMA.

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, or any other marks written eg. 42+8 = 50,  $\gamma$  etc. will be treated as malpractice.

