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**Question Paper Code : X 67577**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Seventh Semester

Electronics and Communication Engineering

EC 1403 – SATELLITE COMMUNICATION

(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

**(10×2=20 Marks)**

1. State Kepler's second law.
2. What is meant by sidereal time ?
3. Distinguish between Geosynchronous and Geostationary orbits.
4. What are the needs for station keeping ?
5. What are Receiver Feeder losses ?
6. Why is the LNA in a satellite receiving system placed at the antenna end of the feeder cable ?
7. What are the limitations of FDMA -satellite access ?
8. What is preamble ?
9. What is GIS ?
10. List the interacting components of NAVSTAR GPS.

**PART – B****(5×16=80 Marks)**

11. a) i) Explain about frequency allocations for satellite services. **(10)**  
ii) Explain about U.S. Domsats. **(6)**  
(OR)
- b) Explain in detail about Orbital elements and Orbital perturbations with suitable example. **(16)**
12. a) i) With mathematics, illustrate the limits of visibility. **(8)**  
ii) How do you place satellites into geo stationary orbit ? **(8)**  
(OR)
- b) i) List the effects to which the displacement in association with tracking feeds gives rise. How can tracking systems be affected ? **(8)**  
ii) With diagrams explain the attitude and orbit control sub-system. **(8)**
13. a) i) Draw the detailed block diagram of a transmit receive earth station and explain. **(8)**  
ii) Describe and compare MATV and CATV systems. **(8)**  
(OR)
- b) i) Derive expression for the link power budget of a satellite system. **(8)**  
ii) What is saturation flux density ? If the power received by a 1.8 m parabolic antenna at 14 GHz is 250pW, then calculate the saturation flux density. **(8)**
14. a) Explain the multiplexing and modulation schemes with FDMA technique with block diagram. **(12)**  
(OR)
- b) Explain the satellite switched TDMA and CDMA. Draw the neat sketch.
15. a) i) Explain in detail the components of GIS. **(12)**  
ii) List the applications of remote sensing and GIS. **(4)**  
(OR)
- b) Explain how image enhancement and filtering is carried out in satellite images. **(16)**
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