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Question Paper Code : 11297

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2014.

Eighth Semester

Electronics and Communication Engineering

080290077 — SATELLITE COMMUNICATION

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by the geostationary orbit? How does that differ from a geosynchronous orbit?
2. List out the reasons why the Ku band is used for the DBS service?
3. Define the terms *roll*, *pitch* and *yaw*.
4. Define and distinguish between satellite station keeping and satellite attitude control.
5. What is the need for common signaling channel?
6. What are the limitations of FDMA and how does it differ from FDM?
7. Why is a LNA in a satellite receiving system is placed at the antenna end of the feeder cable?
8. What do you mean by beam switching?
9. State briefly where VSAT systems find widest application.
10. List out the regions covered by INMARSAT.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain about the frequency allocation for satellite services. (6)
(ii) Explain about orbital perturbations. (6)
(iii) Explain briefly what is meant by sun transit outage and satellite eclipse. (4)

Or

- (b) (i) Explain look angle determination and Elevation angle calculation. (6)
(ii) Explain about Launch vehicles and the Launching of Geo Stationary Satellites. (10)

12. (a) (i) Explain the Stabilization techniques in detail. (10)
(ii) Explain the EAST-WEST station keeping and NORTH-SOUTH station keeping. (6)

Or

- (b) Explain the different types of satellite transponders with a neat sketch. Explain the factors to be considered while designing a satellite transponder. (16)

13. (a) Explain in detail about satellite switched TDMA and CDMA. (16)

Or

- (b) (i) What is inter-modulation noise? How it can be mitigated? (4)
(ii) Classify various modulation and multiplexing techniques. (6)
(iii) What is meant by spreading? What are the needs for spread spectrum communication? Brief any one Spread spectrum technique. (6)

14. (a) Explain and compare between CATV and MATV systems. (16)

Or

- (b) (i) Briefly explain about polarization interleaving. (4)
(ii) Why is it desirable to down convert the satellite TV signal received at antenna? What is the need for intermediate frequency conversion and second intermediate frequency conversion at TV receivers? (6)
(iii) Explain briefly with a neat sketch the indoor unit of satellite TV receiving system for home reception. (6)

15. (a) (i) Explain the operation of VSAT system. (8)
(ii) Explain the operation of Satellite used in navigation system. (8)

Or

- (b) (i) Explain Digital Audio Broadcast. (6)
(ii) Explain operation of GRAMSAT. (6)
(iii) Brief about Remote sensing. (4)