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D – 4156

Reg. No. :

Name :

**Eighth Semester B.Tech. Degree Examination, January 2018
(2013 Scheme)
13.806.6 : SATELLITE COMMUNICATIONS (T)
(Elective VI)**

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions (2 marks **each**) :

1. List out the frequency bands used for satellite services.
2. State Kepler's second law of planetary motion.
3. What are geostationary satellites ?
4. Give the formulae to compute the uplink carrier to noise ratio.
5. A satellite downlink at 12 GHz operates with a transmit power of 6W and an antenna gain of 48.2 dB. Calculate the EIRP in dBW.
6. What are the advantages of CDMA-satellite access ?
7. Distinguish between pre-assigned and demand-assigned TDMA satellite access.
8. Define modulation.
9. Give the applications of satellites.
10. What are VSATs ?

P.T.O.



PART – B

Answer **any one full** question from **each** Module (20 marks **each**) :

Module – 1

11. a) List and explain any one type of launching procedures of satellite. 10
b) Explain about the orbital parameters in detail. 10

OR

12. a) Show the different types of satellite orbits and discuss their merits and demerits. 10
b) Summarize on launch vehicles and propulsion. 10

Module – 2

13. With a neat sketch, explain the power budget for a satellite link considering back off and rain fade margin. 20

OR

14. How does the system noise temperature affect the performance ? Derive the expression for overall system noise temperature at the receiving earth station. 20

Module – 3

15. a) Explain the TDMA burst and frame structure of satellite system. Draw the necessary diagrams. 10
b) Explain the operation of spread spectrum communication. 10

OR

16. a) Discuss about analog and digital transmission system. 14
b) Point out the pros and cons of satellite system based on FDMA. 6

Module – 4

17. What is meant by DTH ? What are the design issues to be considered for launching DTH systems ? 20

OR

18. a) Discuss in detail about Global Positioning Satellite System. 10
b) Write brief notes on the advantages and disadvantages of using satellites in LEOs, MEOs and GEOs for mobile satellite communications. 10
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