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Question Paper Code : 20387

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Seventh Semester

Electronics and Communication Engineering

EC 6004 — SATELLITE COMMUNICATION

(Regulations 2013)

(Also common to : PTEC 6004 – Satellite Communication for B.E. (Part-Time) Seventh Semester – Electronics and Communication Engineering Regulations – 2014)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State Kepler's third law.

2. Distinguish between GEO system and LEO system.

3. Why is the satellite link probably the most basic in microwave communications?

4. Write the relationship between EIRP and antenna gain.

5. List the ionospheric effects on space link.

6. State examples for return link.

7. List the features of spread spectrum communication.

8. How does a CDMA receiver function for the purpose of synchronization maintenance and reliable data reconstruction?

9. List the basic principle of VSAT networks.

10. In what ways, does a satellite transfer TV signals to the particular consumer?

PART B — (5 × 13 = 65 marks)

11. (a) What is the principle of Liquid Propulsion System? Explain the specific technologies under the category of Electric and ion propulsion. (6+7)

Or

(b) Explain the features of typical satellite launch vehicles. (13)

12. (a) "Satellite communications employ electromagnetic waves to carry information between ground and space" — Justify. (13)

Or

(b) "The thermal control system represents a common denominator for all operating elements of the spacecraft" – Justify. (13)

13. (a) State the tropospheric effects on space link. Explain the use of Traveling Wave Tube Amplifier in satellite communication systems. (3+10)

Or

(b) List and explain the steps of Link power budget analysis for downlink.(13)

14. (a) Why is CDMA otherwise called spread spectrum communication? How does it differ from FDMA and TDMA? (13)

Or

(b) "TDMA is a truly digital technology, requiring that all information be converted into bit streams or data packets before transmission to the satellite" — Justify. (13)

15. (a) (i) Explain the features of Direct-to-Home Broadcasting Satellite. (9)

(ii) State the features to make satellite communication system advantageous in appropriate applications. (4)

Or

(b) How are mobile services used in satellite communication systems? (13)

PART C — (1 × 15 = 15 marks)

16. (a) Explain the purpose of Tracking, Telemetry and Command operations. (15)

Or

(b) Write the features of digital TV broadcast. List the various factors of home receiver unit. (9+6)

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