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Question Paper Code : 70406

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electronics and Communication Engineering

EC 6004 – SATELLITE COMMUNICATION

(Regulations 2013)

(Common to PTEC 6004 – Satellite communication for B.E. (Part-Time) –
Electronics and Communication Engineering – Seven Semester (Regulations – 2014)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What does electric propulsion depend on?
2. State Kepler's First Law.
3. What does the thermal control system represent?
4. What does active thermal control depend on?
5. Write the inverse square law.
6. Why is the satellite link probably the most basic in microwave communications?
7. What does despreading of the synchronized received carrier cause?
8. Why is the detailed design of the spread-Spectrum receiver critical to proper CDMA operations?
9. Why are high-power DTH satellites designed?
10. GEO satellite is uniquely situated to deliver the same signal throughout a country or region at an attractive cost per user. List the factors on which the particular economics of this delivery depend.

PART B — (5 × 13 = 65 marks)

11. (a) Explain the features of typical launch vehicles with a suitable diagram. (13)

Or

- (b) Explain the principle of liquid Propulsion system.

12. (a) Explain about Satellite Tracking and Spacecraft Telemetry system.

Or

- (b) Describe about space craft command system and TTC omni-directional antenna.

13. (a) Explain the use of Traveling Wave Tube Amplifiers in Satellite communication.

Or

- (b) Describe the steps of Link budget analysis of downlink.

14. (a) There is an adaptation for data, called ALOHA, that uses burst transmission but eliminates the assignment function of a master control. Justify.

Or

- (b) (i) List the features of spread spectrum technology. (7)

- (ii) Why is code division multiple access called spread spectrum communication? (6)

15. (a) Explain the relationship between data communications and the Internet.

Or

- (b) List the features which make satellite communication advantageous. What are the features of digital video broadcast? Mention the various factors of DTH system.

PART C — (1 × 15 = 15 marks)

16. (a) Present the design procedure of an INMARSAT system.

Or

- (b) Examine the effectiveness of system reliability and design life time of a satellite communication system.