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Question Paper Code : 10729

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2026.

Fifth/Sixth/Seventh/Eighth Semester

Electronics and Communication Engineering

CEC352 – SATELLITE COMMUNICATION

(Common to : Electronics and Telecommunication Engineering)

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Perigee.
2. Why does the launch vehicle provide the boost?
3. Write the need for two-way system of radio communication.
4. What does the AOCS maintain?
5. Why do most geostationary satellites employ bent-pipe repeaters?
6. Why is the satellite probably the most basic in microwave communication?
7. When does the selective addressing capability provide authentication?
8. Write the relation between interface rejection and spread spectrum receiver.
9. Write the function of conditional access interface.
10. Write the function of Reed-Solomon forward error correction system.

PART B — (5 × 13 = 65 marks)

11. (a) Summarize the role Kepler's law in determining satellite orbits.

- (b) Explain the principle of liquid propulsion system. Define the types of orbital parameters. (7+6)

12. (a) Explain the following:
- (i) Satellite tracking and ranging (6)
 - (ii) Spacecraft omni-directional antenna. (7)

Or

- (b) Because of unavoidable degradation of mirror surface, the temperature in the spacecraft gradually rises on the yearly basis. Justify this statement.
13. (a) Explain the effects of gaseous atmosphere and ionosphere on link performance. (13)

Or

- (b) Analyse the expression for link power budget of downlink.
14. (a) TDMA is a truly digital technology requiring that all information be converted into bit streams or data packets before transmission to the satellite. Justify this statement.

Or

- (b) Explain why CDMA is called a spread spectrum communication.
15. (a) Satellite networks are able to meet a wide variety of data communication needs of businesses, government agencies, and NGOs. Justify this statement.

Or

- (b) List the various factors of DTH. Explain how you can say that the last step in the evolution of satellite TV networks is DTH. (6+7)

PART C — (1 × 15 = 15 marks)

16. (a) Explain the specific technologies under the category of electric and ion propulsion. State Kepler's laws. (12+3)

Or

- (b) In association with TTC (Telemetry, Tracking, and Command) system, explain spacecraft telemetry system and spacecraft command system. (7+8)