

C 41242

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Name:

Reg. No.

**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
MAY 2013**

EC/PTEC 09 L05—SATELLITE COMMUNICATION

(2009 Admission onwards)

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all the questions.

1. Define the terms ascending and descending nodes.
2. What is a geostationary orbit ?
3. What is polarization isolation ?
4. Define saturation flux density.
5. What is a C band ? Name two applications using C band.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. State Kepler's laws.
7. Write notes on launch vehicles.
8. Briefly discuss on transponders.
9. An uplink at 14 GHz requires a saturation flux density — 91.4 dBW/m² and an input back-off 11 dB. The satellite G/T is - 6.7 dBK⁻¹. Find the carrier-to-noise density ratio.
10. Write briefly about home TV and digital DBS.
11. Explain on GPS.

(4 × 5 = 20 marks)

Part C

Answer all the questions.

12. (a) Explain in detail about launching of a satellite.

Or

- (b) Discuss the effects of doppler shift, solar eclipse and sun transit outage on the performance of a satellite communication system.

Turn over

13. (a) Explain about telemetry, tracking and command system.

Or

(b) Explain in detail antenna subsystem.

14. (a) (i) Discuss and derive the expression for combined uplink and downline carrier-to-noise ratio.

(ii) Derive the transmission equation.

Or

(b) Derive the expression of overall system noise temperature.

15. (a) Discuss, in detail, about various multiple access systems.

Or

(b) Discuss, in detail, about VSAT systems.

(4 × 10 = 40 marks)