

Ext - VIII  
**Satellite Communication & Networking**

Paper / Subject Code: 52906 / Satellite Communication & Networks

**Duration: 3 Hours**

**Marks: 80**

**Note:**

- 1) Q.1 is compulsory.
- 2) Attempt any three questions from the remaining five questions.
- 3) Assume Suitable data wherever necessary

**Q1. Attempt any four**

- a) Why LAN is placed close to outdoor unit?
- b) What are the space particles? What is the impact on satellite? The TWT has limited life and less reliable to other subsystems justify
- c) Explain different orbital parameters
- d) Explain design considerations of Earth station
- e) Differentiate window and frame organization

**20**

**Q2. a) What is EIRP, Discuss importance of [G/T] ratio. Calculate Overall [C/N] for a satellite link, if [C/N] up link = 25dB and [C/N] downlink = 20dB and intermodulation noise = 13dB**

**10**

**b) Explain**

- 1) Input Back off and output back off
- 2) AM/PM Conversion

**Q3 a) Define 'Satellite perturbation', their causes and effects**

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**b) What are different types of lasers used for satellite communication? Explain acquisition link model for optical communication**

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**Q4 a) What is meant by sub-system reliability & its Characteristics? Hence explain the terms:- initial failure, random failure & wear-out failure**

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**b) With the help of block diagram explain transmit receive type of earth station**

**10**

**Q5. a) Explain SPADE system and SCPC of FDMA**

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**b) Explain earth Eclipse of satellite with neat sketches. State & Derive the period & duration of eclipse before & after equinox. Also explain the Sun Transit**

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**Q6. Write short note on any TWO**

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- a) Onboard connectivity with transparent processing
- b) VSAT and GPS
- c) TTC

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