

**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

**20**

- 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

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

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- 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

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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