

**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) Explain Launching of Geostationary satellites
- b) Explain design considerations of Earth station
- c) State and explain Kepler's Laws
- d) Explain different orbital parameters
- 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**

**10**

**b) Explain TT & C subsystem. Explain role of multi-tone frequency in tracking system.**

**10**

**Q3 a) Describe different stabilization technique**

**10**

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

**10**

**Q4 a) With the help of block diagram explain transmit receive type of earth station**

**10**

**b) Draw and explain satellite network architecture**

**10**

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

**10**

**b) Which types of antennas used in satellite communication. Explain any one in detail.**

**10**

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

**20**

**a) Onboard connectivity with transparent processing**

**b) VSAT and GPS**

**c) Reliability and space Qualification**