

Roll No.

22661

M. Tech. 1st Semester (ECE)
CBCS Scheme
Examination – February, 2022
SATELLITE & SPACE COMMUNICATION

Paper : MTECE21C2

Time : Three hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Unit. Question Number 1 is *compulsory*.

All question carry equal marks.

1. (a) Explain applications of Passive satellite system.
- (b) Elaborate on Returning period and its effects.
- (c) What do you understand by scintillation ? Also bring out attenuation caused by it.
- (d) Draw and explain system timing frame of FDMA.

4 × 5 = 20

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UNIT - I

- 2. (a) Tabulate briefly the historical evolution of satellite communication system. 10
- (b) Enumerate various applications of satellite communication with examples of each. 10
- 3. (a) What do you understand by Active satellite system? Bring out various salient features of the active satellite system. 10
- (b) Tabulate various frequency bands used in satellite communication. Also give out limitations of each band spectrum. 10

UNIT - II

- 4. (a) State Kepler's laws. Also explain each with the help of mathematical equation. 10
- (b) Enumerate main characteristics of Geo synchronous satellite parameters. 10
- 5. (a) Derive general link equations. Find out expression for C/N and G/T ratios. 10
- (b) Discuss in details interference effects on complete link design. 10

UNIT - III

- 6. (a) What is meant by tracking and pointing? Explain its significance and the techniques as to how these are achieved. 10

- (b) What do you mean by path loss? Discuss free space path loss calculation models used in satellite communication system. 10
- 7. (a) Discuss briefly about offset QPSK technique used for demodulation in satellite communication system. 10
- (b) Derive the equation for error rate calculation in Satellite Communication. Also specify what is the permissible limit? 10

UNIT - IV

- 8. Write short notes on the following: 10 x 2 = 20
- (a) Frame structure and frame efficiency of TDMA
- (b) VSAT system
- 9. (a) Write briefly about TEI SET system. 10
- (b) What do you understand by GPS? Briefly explain working and applications GPS. 10