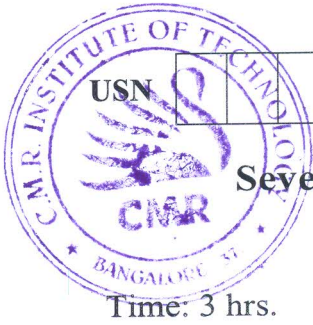


CBCS SCHEME



15EC755

Seventh Semester B.E. Degree Examination, June/July 2023 Satellite Communication

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the phenomenon of earth eclipse of satellite and sun transit outage. (10 Marks)
b. The apogee and perigee distance of a satellite orbiting in an elliptical orbit are 45,000km and 7000km. determine the following:
i) Semi major axis of the elliptical orbit
ii) Orbit eccentricity
iii) Distance between the centre of earth and the centre of the elliptical orbit. (06 Marks)

OR

- 2 a. State and explain the Kepler's laws of planetary motion with neat diagram and necessary equations. (10 Marks)
b. Compare between spin stabilized and three axis stabilized satellite. (06 Marks)

Module-2

- 3 a. With the help of neat diagram, explain TTC and M subsystem. (08 Marks)
b. With suitable block diagram, explain earth station architecture. (08 Marks)

OR

- 4 a. Explain the phenomenon of attitude and orbit control. (08 Marks)
b. With a suitable block diagram, explain the satellite tracking system. (08 Marks)

Module-3

- 5 a. Explain the concepts of TDMA and FDMA using appropriate figures. Discuss the relative advantage and disadvantage of each. (10 Marks)
b. Explain SPADE system. (06 Marks)

OR

- 6 a. With neat block diagram, explain DS-CDMA transmission and reception. (10 Marks)
b. Explain how different parameters influence the design of a satellite communication link. (06 Marks)

Module-4

- 7 a. Write any five advantages of satellite over terrestrial networks. (08 Marks)
b. Explain the working principle of direct-to-home television. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 8 a. List out the disadvantages of satellites with respect to terrestrial networks and explain them. (08 Marks)
- b. Using neat block diagram, explain the basic elements of satellite communication system. (08 Marks)

Module-5

- 9 a. Give any six applications of remote sensing satellites. (06 Marks)
- b. With neat diagram, explain thermal infrared remote sensing system. (10 Marks)

OR

- 10 a. Explain the working principle of the GPS. (10 Marks)
- b. Write note on any one of the following:
- i) Active sensors
 - ii) Image interpretation
 - iii) Weather forecasting satellite payloads. (06 Marks)
