CBCS SCHEME

USN | | | | | | | | | | |

18EC732

Seventh Semester B.E. Degree Examination, Jan./Feb. 2023
Satellite Communication

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. State and explain the Kepler's laws of planetary motion with neat diagrams and necessary equations. **(10 Marks)**

b. Explain phenomenon earth ellipse of satellite. **(06 Marks)**

c. The elliptical orbit of a satellite has its semi-major axis and semi-minor axis as 25000 km and 1833 km respectively. Determine the apogee and perigee distances. **(04 Marks)**

OR

2 a. Explain injection velocity and resulting satellite trajectories with supporting expression. **(09 Marks)**

b. Describe different types of satellite orbits with respect to the orientation of the orbital plane. **(07 Marks)**

c. Explain Azimuth and Elevation angle. **(04 Marks)**

Module-2

3 a. Explain basic block schematic arrangement of a regulated bus power supply system. **(08 Marks)**

b. Explain telemetry, tracking and command subsystem with block diagram. **(08 Marks)**

c. Define fixed satellite earth station and mobile satellite service earth station. **(04 Marks)**

OR

4 a. Explain earth station architecture with generalized earth station block diagram. **(10 Marks)**

b. Explain three tracking techniques used for satellite tracking. **(10 Marks)**

Module-3

5 a. Derive expression for transmission equation. **(08 Marks)**

b. Explain TDMA typical frame structure. **(08 Marks)**

c. Mention the advantages of TDMA over FDMA. **(04 Marks)**

OR

6 a. Discuss the parameters influence the design of satellite communication link. **(09 Marks)**

b. Explain demand assigned FDMA and pre-assigned FDMA. **(05 Marks)**

c. Explain SDMA/FDMA system and SDMA/TDMA with neat diagram. **(06 Marks)**

Module-4

7 a. Mention the advantages and disadvantages of satellite over terrestrial networks. **(08 Marks)**

b. Explain with neat block diagram, satellite point to point telephone networks. **(08 Marks)**

c. Explain communication related application of satellite. **(04 Marks)**

OR

8	a.	Explain satellite telephony.	(08 Marks)
	b.	Explain with neat block diagram bent or transparent transponder.	(08 Marks)
	c.	Explain the bands of satellite communication.	(04 Marks)

Module-5

9	a.	Explain GPS satellite system structure.	(08 Marks)
	b.	What is remote sensing satellite network? What are its applications?	(08 Marks)
	c.	Explain brief weather forecasting satellite orbits.	(04 Marks)

OR

10	a.	Classify the sensors used in remote sensing satellites.	(08 Marks)
	b.	What are the applications of satellite navigation systems?	(04 Marks)
	c.	Explain optical, thermal and microwave remote sensing systems.	(08 Marks)

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