U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E. **Semester: VIII**
Branch: Institutional Elective **Duration: 3 hrs.**
Course Code: 19ET8OE3SP **Max Marks: 100**
Course: Satellite Principles and Applications **Date: 06.07.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT – I	*CO*	*PO*	Marks
1	a)	State and explain Kepler's laws of planetary motion with neat diagrams and necessary equations.	*CO1*		**10**
	b)	Define and explain the following orbital parameters: (i) Equinoxes (ii) Apogee (iii) Eccentricity (iv) Right Ascension of Ascending node (v) Angles defining direction of satellite	*CO1*		**10**
		OR			
2	a)	List and explain the various look angles of a satellite.	*CO1*		**10**
	b)	Write short notes on (i) Launch Vehicles (ii) Orbital Perturbations	*CO1*		**10**
		UNIT – II			
3	a)	Describe the working principle of propulsion subsystem. Also list and explain its types.	*CO1*		**10**
	b)	Explain three tracking techniques used for satellite tracking.	*CO1*		**10**
		UNIT - III			
4	a)	With a neat diagram, discuss the carrier frequencies for a C band transponder for both uplink and downlink in FDMA.	*CO1*		**10**
	b)	Compare DS-CDMA, FH-CDMA and TH-CDMA systems.	*CO1*		**10**
		OR			
5	a)	Derive the expression for the following: (i) Frequency spectrum of AM signal (ii) Power in AM signal (iii) Noise in AM signal	*CO1*		**10**

		b)	List and explain the various parameters that influence the design of a satellite communication link.	*CO1*		**10**
			UNIT – IV			
	6	a)	Briefly explain weather forecasting satellites orbits and payloads.	*CO1*		**10**
		b)	Describe the principle operation of GPS satellite signal structure. And also list the applications of Satellite Navigation System.	*CO1*		**10**
			UNIT – V			
	7		Analyze the following (i) Reconnaissance Satellites (ii) Applications of Scientific Satellites (iii) Military Communication Satellites (iv) Space Stations	*CO1*		**20**

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