1T01038 - B.E.(Electronics and Telecommunication)(SEM-VIII)(Choice Base Credit Grading System) (R- 2019-20)(C Scheme) / 52978 - Satellite and Nano Satellite Communication

QP CODE: 10043177 DATE: 14/12/2023

Duration: 3hrs **[Max Marks: 80]**

N.B.: (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

1		**Attempt any FOUR**	**[20]**
	a	State and explain Kepler's laws.	**[5]**
	b	Write a short note on bath tub curve.	**[5]**
	c	What are losses involved in satellite communication and how they are minimized?	**[5]**
	d	Explain the various frequency bands used in satellite communication. List out advantages and disadvantages of 6/4 GHz band used in satellite communication	**[5]**
	e	Briefly justify power system design in nanosatellite.	**[5]**
2	**a**	List and explain different methods of launching a satellite?	**[10]**
	b	What do you mean by passive thermal control and what are the different techniques used for it w.r.t. nanosatellite?	**[10]**
3	**a**	Explain what is meant by geostationary orbits. How do they differ from geosynchronous orbits?	**[10]**
	b	What is EIRP and discuss the importance of [G/T] ratio. For a satellite circuit the carrier-to-noise ratios are uplink 23dB, downlink 20dB and intermodulation 24 dB. Calculate the overall carrier- to-noise ratio in decibels.	**[10]**
4	**a**	With the help of block diagram explain transmit receive type of earth station.	**[10]**
	b	With neat diagram explain an Optical camera for earth observation.	**[10]**
5	**a**	Write short note on: i) Single conversion C band ii) 1 dB compression point	**[10]**
	b	Describe OBC Software in detail.	**[10]**
6	**a**	What are the different types of Nano satellite structure design?	**[10]**
	b	Describe the significance of carrier to noise ratio, carrier to noise density ratio and bit energy to noise density ratio.	**[10]**

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