Seat N	o.:	Enrolment No		
		GUJARAT TECHNOLOGICAL UNIVERSITY ME – SEMESTER II– EXAMINATION – WINTER – 2016		
Subject Code: 2720506 Date: 21/ Subject Name: SATELLITE COMMUNICATION			11/ 2016	
_	: 2:3 ctions	0 pm to 5:00 pm Total Ma	arks: 70	
	2. N	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks		
Q.1	(a) (b)	State Kepler's three laws of planetary motion. Illustrate in each case their relevance to artificial satellite orbiting the earth.  Explain Briefly: Limits of Visibility, Earth Eclipse of Satellite	07 07	
Q.2	(a)	What is the difference between geostationary and non geostationary orbits? Explain methods of launching satellite in the orbit.	07	
	<b>(b)</b>	Describe the Telemetry, Tracking and Command facilities of satellite communication system with the help of block diagram. Are these facilities part of the space segment or part of the ground segment of the system?	07	
	<b>(b)</b>	OR Explain Rain attenuation, Atmospheric losses and Ionospheric effects on the signal travelling between earth station and satellite.	07	
Q.3	(a)	What is the difference between Altitude and Attitude of satellite?	07	
		State methods of Attitude control and Explain Spin stabilization of satellite in the geostationary orbit.		
	<b>(b)</b>	Explain basic transmission line theory and derive equation of power received in dBW. (In terms of EIRP, Antenna gain and path loss.)	07	
		OR		
Q.3	(a)	What do you mean by Payload? Briefly describe the equipment sections making up a transponder channel.	07	
	<b>(b)</b>	Describe and compare the MATV and the CATV systems with the help of necessary block diagrams.	07	
Q.4	(a)	Write satellite communication link design procedure and explain	07	
	<b>(b)</b>	design of down links. Explain briefly Earth Station Technology (Terrestrial Interface, Transmitter and Receiver, Antenna Systems)	07	
		OR		

What are the differences between multiplexing and multiple access techniques. Explain briefly Code division multiple access.

**07** 

**Q.4** 

(a)

- (b) Write short on Direct Broadcast Satellite (DBS) and Digital Audio 07 Broadcast (DAB) service.
- Q.5 (a) Explain Frequency division multiple access technique for satellite 07 links. Compare it with TDMA.
  - (b) Discuss for satellite orbits: Orbital parameters and perturbations. 07

## OR

- Q.5 (a) Explain GPS position location principle with necessary diagram and derivations.
  - (b) What does the acronym VSAT stand for? Explain network 07 architectures for VSAT systems.

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