GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2173207   **Date: 26/11/2019**

Subject Name: Satellite Communication & Networking

Time: 10:30 AM TO 01:00 PM   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	List the orbital elements and explain each of them.	**03**
	(b)	Which are the advantages of satellite communication?	**04**
	(c)	Explain Kepler's three laws with necessary diagram and equations.	**07**
Q.2	**(a)**	Define :(1) Eccentricity (2) Perigee (3) Apogee	**03**
	(b)	Describe earth's oblateness, sun & moon's effects on artificial satellite orbit?	**04**
	(c)	Calculate the radius of a circular orbit for which the period is 1 day.	**07**
		OR	
	(c)	An earth station is located at latitude of 12° south and longitude 52° west. Calculate the antenna look angle for a satellite at70° W.	**07**
Q.3	**(a)**	Explain Cross-Polarization Discrimination.	**03**
	(b)	What are atmospheric losses?	**04**
	(c)	By using of equation and figure properly explain the look angle determination of satellite.	**07**
		OR	
Q.3	**(a)**	Explain the phenomenon of scintillation.	**03**
	(b)	Differentiate between XPD and Polarization Isolation.	**04**
	(c)	Explain what is meant by effective path length in connection with rain attenuation.	**07**
Q.4	**(a)**	What is uplink? Draw and explain block diagram.	**03**
	(b)	Write a short note on attitude control system.	**04**
	(c)	Draw and explain block diagram of telemetry, tracking, command and monitoring system for communication satellite.	**07**
		OR	
Q.4	**(a)**	What is downlink? Draw and explain block diagram.	**03**
	(b)	Draw block diagram for transmit receive type earth station.	**04**
	(c)	Draw and Explain the block diagram of satellite transponder in detail.	**07**
Q.5	**(a)**	List the advantage and disadvantage of FDMA multiple access techniques.	**03**
	(b)	The uplink C/N0 ratio is 88dBHz and downlink value is 78dBHz. Calculate overall C/N0.	**04**
	(c)	Explain asynchronous transfer mode in detail.	**07**
		OR	
Q.5	**(a)**	Describe briefly the difference between ATM digital cross connect switch and ATM switch.	**03**
	(b)	Explain all the steps to follow for Uplink power budget preparation**.**	**04**
	(c)	Explain block diagram of Code Division multiple Access in detail.	**07**

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