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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VII (NEW) EXAMINATION - WINTER 2018** 

Subject Code: 2171007 Date: 19/11/2018

**Subject Name: Satellite Communication** 

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

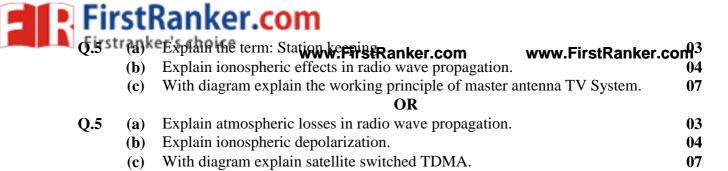
**Instructions:** 

1. Attempt all questions.

2. Make suitable assumptions wherever necessary.

3. Figures to the right indicate full marks.

	3.	rigures to the right indicate full marks.	MARKS
Ω1	(-)	(1) State Iranian's first law.	
Q.1	(a)	<ul><li>(1) State kepler's first law.</li><li>(2) Define eccentricity with figure.</li></ul>	03
	<b>(b)</b>	(1) State kepler's second law and explain it with figure.	04
	(6)	(2) State kepler's Third law.	0.
	(c)	Define: (1) Subsatellite path. (2) Apogee (3) Perigee (4) Line of apsides (5) Ascending node (6) Descending node (7) Prograde orbit.	07
Q.2	(a)	Describe orbital elements.	03
•	<b>(b)</b>	7 (1) (1) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	04
	` /	Define: (1) retrograde orbit (2) Argument of perigee (3) mean anomaly (4) True anomaly	
		(3) mean anomaly	
		(4) True anomaly	
	<b>(c)</b>	Explain Orbit perturbations such as:	07
		Effects of a nonspherical earth With necessary equations.	
		OR	
	<b>(c)</b>	Describe antenna look angles with figures.	07
<b>Q.3</b>	(a)	What are the conditions required for an orbit to be geostationary?	03
	<b>(b)</b>	Explain limits of visibility with figure.	04
	(c)	Explain earth eclipse of satellite with figure.	07
0.3	( )	OR	0.2
Q.3	(a)	What do you mean by near geostationary orbit?	03
	(b)	Explain the function of hohmann transfer orbit with figure.	04
0.4	(c)	Describe rain attenuation and derive equation for it.	07
Q.4	(a)	Explain sun Transit outage.	03
	(b)	Explain rain depolarization with figures.  Explain Cross polarization discrimination with figures.	04 07
	(c)	OR	07
<b>Q.4</b>	(a)	What is link power budget equation? Explain briefly.	03
	<b>(b)</b>	With diagram explain the working principle of Community antenna TV System.	04
	(c)	Explain attitude control in detail. Define passive attitude control and active attitude control.	07



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