Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II(New course) • EXAMINATION (Remedial) – WINTER- 2015

Subject Code: 2720506 **Date: 11/12/2015**

Subject Name: Satellite Communication

Time:2:30 pm to 5:00 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)**	A satellite is placed in GEO. State at least three characteristics that can help you to decide whether it would be a Geosynchronous or Geostationary satellite. Define Geostationary and Geosynchronous Orbits. State one application each of both.	**07**
	(b)	Explain how the centripetal and centrifugal forces help the satellite body to be in motion once it is placed in the orbit.	**07**
Q.2	**(a)**	Define noise power and noise bandwidth. For an equivalent noise bandwidth of 10 MHz and a total noise power of 0.0276 pW, determine the noise density and equivalent noise temperature.	**07**
	(b)	Define Anomaly. What is the significance of different anomalies? How are they related to each other?	**07**
		OR	
	(b)	ñThe Keplerôs laws provide an insight to Satellite Communicationò. Justify.	**07**
Q.3	**(a)**	Why is it said that the uplink frequency be larger than the downlink frequency?	**07**
	(b)	Using a neat sketch, draw block diagram to show the six elements Keplerian set.	**07**
		OR	
Q.3	**(a)**	Draw & explain the different beams that are obtained from different antennas in Satellite Communication system	**07**
	(b)	Define the elevation angle, the azimuthal angle and the central angle. What is the need of a visibility test?	**07**
Q.4	**(a)**	Mention any two reasons that cause variation in the performance of the satellite.	**07**
	(b)	Define multiple access techniques. Differentiate amongst TDMA, FDMA & CDMA.	**07**
		OR	
Q.4	**(a)**	Explain the working of the GPS using Satellite communication.	**07**
	(b)	Draw the TTC & M block diagrams and explain each component.	**07**
Q.5	**(a)**	Express the relation between EIRP, Flux Density and Power at a given wavelength.	**07**
	(b)	Differentiate between LEO, GEO and a Sun synchronous orbit.	**07**
		OR	
Q.5	**(a)**	Write a short note on Equipment Reliability and Space Qualification.	**07**
	(b)	Explain the different topologies in a VSAT network.	**07**

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