

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:2171007****Date:14-12-2023****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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Define: Line of apsides, Line of nodes and Inclination.	03
	(b) Draw and explain the block diagram of satellite communication in detail.	04
	(c) Explain Kepler's three law of planetary motion with require expression.	07
Q.2	(a) Differentiate between Geosynchronous and Geostationary Orbits.	03
	(b) Describe orbital elements.	04
	(c) A satellite is in an elliptical orbit with a perigee of 1000km and an apogee of 4000km. using mean earth radius of 6378 km, find the period of the orbit in Hours, minutes, and seconds, and the eccentricity of the orbit.	07
	OR	
	(c) Draw and Explain TT and C.	07
Q.3	(a) Define and Explain the terms roll, pitch and yaw.	03
	(b) Explain Orbit perturbations.	04
	(c) The details of the earth station site and the satellite are as follows: Find Antenna Look Angle. • Earth station latitude and Longitude are 52.0 N and 00 • Satellite longitude (subsatellite point) is 66.00 E	07
	OR	
Q.3	(a) Explain GPS.	03
	(b) Explain Atmospheric Losses and Ionosphere Effects for radio wave propagation	04
	(c) Explain the Spade system.	07
Q.4	(a) Explain sun Transit outage.	03
	(b) Write a short note on DVB standards	04
	(c) Write a short note on receive-only home TV system.	07
	OR	
Q.4	(a) Explain Polarization of Satellite Signals.	03
	(b) Explain the Attitude Control for Satellite.	04
	(c) List the types of Multiple access systems used in satellite communication and give its comparison.	07
Q.5	(a) Explain the term: Station keeping.	03
	(b) The uplink C/No ratio is 100 dBHz and downlink value is 87 dBHz. Calculate overall C/No ratio.	04
	(c) Draw and explain Digital DBS TV in detail.	07
	OR	

Q.5	(a) Explain in brief Demand Assigned FDMA.	03
	(b) Explain VSAT and its applications.	04
	(c) Explain the working principle of master antenna TV System With diagram.	07
