

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (OLD) - EXAMINATION – SUMMER 2017****Subject Code: 171007****Date: 29/04/2017****Subject Name: Satellite Communication (Department Elective - I)****Time: 02:30 PM to 05:00 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) Explain Kepler's three laws of planetary motion. What is the difference between polar orbit and geostationary orbit? **07**

(b) Explain the Keplerian element set. **07**

Q.2 (a) Explain different Satellite services. **07**

(b) Calculate the radius of a circular orbit for which the period is one day. **07**

OR

(b) What is satellite communication? Draw and explain the block diagram of satellite communication in detail. **07**

Q.3 (a) Write a short note on Equipment reliability and space qualification for Satellite Communication. **07**

(b) Explain Cross-Polarization Discrimination. **07**

OR

Q.3 (a) Explain the block diagram of Satellite Transponder. Also explain the frequency reuse technique for Transponder. **07**

(b) Draw the explain TT&C. **07**

Q.4 (a) How the error control done in Digital DBS-TV? Explain it. **07**

(b) List the types of orbits used in the satellite and give its comparison with appropriate advantages and disadvantages. **07**

OR

Q.4 (a) What is VSAT? List the applications of VSAT. Draw and explain the block diagram of VSAT system. **07**

(b) Write short notes on Master Control Station required for Direct Broadcast Satellite Television (DBS-TV) system. **07**

Q.5 (a) Explain how to compute uplink and downlink C/N ratios for a typical satellite link. **07**

(b) Explain GPS receiver operation in short. **07**

OR

Q.5 (a) Explain the spade system. **07**

(b) Write differences between: **07**

(i) Attitude control and orbital control

(ii) East-west and North-south station keeping maneuvers.
