

Code No: PT42043A

R13**Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

SATELLITE COMMUNICATION
(Electronics and Communications Engineering)

Time: 3 hours

Max. Marks: 70

*Question paper consists of Part-A and Part-B**Answer ALL sub questions from Part-A**Answer any THREE questions from Part-B*

PART-A (22 Marks)

1. a) Explain the basic difference between an active and passive satellite. [4]
- b) What are the various orbits in which satellite can exist? Discuss. [4]
- c) What is spin stabilization? Why it is necessary? [4]
- d) Draw the satellite uplink model and discuss about modulator. [4]
- e) What are the functions of primary feed system in earth station? [3]
- f) Write the difficulties in DGPS? [3]

PART-B (3x16 = 48 Marks)

2. a) Write a brief history of Indian satellite communication. [8]
- b) Discuss the various satellite services in brief. [8]
3. a) Derive the equation of the satellite orbit in polar coordinate system. [8]
- b) What are Kepler's three laws of planetary motion? [8]
4. a) Explain how attitude and orbit control is achieved from an earth station. [8]
- b) Explain how power is generated in satellite. [8]
5. a) Derive the noise power in terms of gains and noise temperature of LNA, mixer and IF amplifier. [8]
- b) Differentiate the multiplexing and multiple access techniques. [8]
6. a) Why high power amplifiers are necessary for an earth station? What are its characteristics? [8]
- b) Why the geostationary orbit has been preferred for satellite communication system? [8]
7. a) Explain the trilateration method used for position of GPS receiver. [8]
- b) Explain the function of the non-coherent delay lock loop in GPS receiver. [8]