CBCS SCHEME

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022
Satellite Communication

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. With neat sketches, explain injection velocity and its resulting trajectories. **(08 Marks)**
   b. Discuss three empirical expressions that explained planetary motion with neat pictorial representation. **(06 Marks)**
   c. Explain the piece of information required to determine Antenna look angle. A Geostationary satellite is located at 90ºW. Calculate the Azimuth angle and elevation angle for an Earth station antenna at latitude 35ºW and longitude 100ºW, where R = 6371Km, a_{GSO} = 42164Km. **(06 Marks)**

OR

2 a. With a neat sketch, explain the satellite stabilization techniques and compare them. **(08 Marks)**
   b. What is Antenna look angles? Explain the Geometry involved to determine the look angles for Geostationary orbits. **(06 Marks)**
   c. With neat sketches classify satellite orbits. **(06 Marks)**

Module-2

3 a. Explain the role and function of power supply in satellite subsystem. **(08 Marks)**
   b. Explain the function of attitude control and TT & C subsystem. **(06 Marks)**
   c. With neat sketch, explain the operation of solar cell. **(06 Marks)**

OR

4 a. Discuss the major components of an Earth station, Architecture. **(08 Marks)**
   b. With neat sketches, explain the hardware categorized for Earth station. **(06 Marks)**
   c. Discuss the tracking Techniques used in satellite communication. **(06 Marks)**

Module-3

5 a. Explain the basic concept of TDMA and explain its typical frame structure. **(08 Marks)**
   b. Explain the operation of SDMA is conjunction with other types of Multiple Access Techniques. **(06 Marks)**
   c. Compare FDMA and TDMA techniques. **(06 Marks)**

OR

6 a. Derive a suitable expression for transmission equation in SATELLITE LINK DESIGN. **(08 Marks)**
   b. Discuss significant bearing propagation considered during SATELLITE LINK DESIGN. **(06 Marks)**
   c. Classify and explain various satellite services offered by satellite communication. **(06 Marks)**