

# CBCS SCHEME

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18MT644

**Sixth Semester B.E. Degree Examination, June/July 2023**

## **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. Explain Satellite, Orbit, Trajectory, Centripetal force and centrifugal force with schematic diagrams. (10 Marks)
- b. Explain three Kepler's laws of planetary motion with schematic diagrams. (10 Marks)

**OR**

- 2 a. Explain Injection velocity and Resulting Satellite Trajectories. With relevant equations and diagrams. (10 Marks)
- b. Explain types of satellite orbits based on orientation of the orbital plane, eccentricity and distance from earth. (10 Marks)

### **Module-2**

- 3 a. Explain solar energy driven regulated bus power supply system with neat diagram. (10 Marks)
- b. Define solar panels and discuss the operation of a solar cell with neat diagram. (10 Marks)

**OR**

- 4 a. Explain Tracking, Telemetry and command subsystem with neat diagrams. (10 Marks)
- b. Explain Fixed Satellite Service [FSS] Broadcast Satellite Service [BSS] and Mobile Satellite Service [MSS] earth stations with their characteristic features. (10 Marks)

### **Module-3**

- 5 a. Explain the Global Positioning Satellite [GPS] system with various segments. (10 Marks)
- b. Explain the working principle of GPS. (10 Marks)

**OR**

- 6 a. Explain GLONASS Satellite system, with various segments. (10 Marks)
- b. Explain the applications of Satellite Navigation Systems. (10 Marks)

### **Module-4**

- 7 a. Explain Basic Elements of a Satellite communication system with neat diagram. (10 Marks)
- b. Explain advantages of satellites over terrestrial networks. (10 Marks)

**OR**

- 8 a. Explain TVRO services with neat diagram and salient features. (10 Marks)
- b. Explain DBS service with neat diagram and salient features. (10 Marks)

### **Module-5**

- 9 a. Explain optical remote sensing systems with neat schematic diagram. (10 Marks)
- b. Explain thermal infrared remote sensing systems with neat schematic diagram. (10 Marks)

**OR**

- 10 a. Explain Microwave remote sensing systems with neat schematic diagram (10 Marks)
- b. Explain various types of sensors on board remote sensing satellites. (10 Marks)

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