

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE, APRIL – 2024**

**COMMUNICATION SYSTEMS**

[Maximum Marks : 100]

[Time : 3 hours]

**PART – A**  
(Maximum Marks : 10)

Marks

**I.** Answer **all** questions in one or two sentences. Each question carries 2 marks.

1. State the use of link repeater in microwave communication.
2. Write the use of LNB (Low Noise Block) in dish antenna.
3. List two optical sources used in optical communication.
4. Define acceptance angle of optical fiber.
5. State the cellular concept in mobile communication.

(5x2=10)

**PART – B**  
(Maximum Marks : 30)

**II.** Answer any **five** of the following questions. Each question carries 6 marks.

1. Describe the criteria that have to be considered in microwave communication. Why we have to use dedicated microwave devices?
2. Explain with a block diagram the working of microwave transmitter.
3. Using a block diagram explain about satellite communication system.
4. Describe about direct-to-home (DTH) satellite television.
5. Explain the classifications of optical fiber cable based on the modes of propagation and refractive index of fiber.
6. Define channel fading. Briefly explain.
7. Describe about 4G technology in mobile communication.

(5x6=30)

**PART – C**

(Maximum Marks : 60)

(Answer **one full** question from each unit. Each full question carries 15 marks)

**UNIT – I**

- III.** (a) Explain how reflex klystron acts as a microwave oscillator. (8)  
(b) Describe the working principle of horn antenna. How is electromagnetic waves radiated using horn antenna. (7)

**OR**

- IV.** (a) Describe tunnel diode used in microwave communication. (8)  
(b) Explain with block diagram about microwave receiver. (7)

**UNIT – II**

- V.** (a) Make a short note on FDMA and TDMA methods used in satellite communication system. (8)  
(b) Describe with a neat diagram about dish antenna used in satellite communication. (7)

**OR**

- VI.** (a) Draw a communication satellite orbit and explain the terms apogee, perigee and angle of inclination. (8)  
(b) Describe about Geographic Information System (GIS). (7)

**UNIT –III**

- VII.** (a) Describe the working of LASER diode. (8)  
(b) List and explain advantages of fiber optic communication system. (7)

**OR**

- VIII.** (a) Explain different losses in fiber optic communication system. (8)  
(b) Define optical detectors. Explain how PIN diode is used as optical detector. (7)

**UNIT – IV**

- IX.** (a) Describe mobile communication. Write the applications and advantages of mobile communication. (8)  
(b) Compare the wireless techniques WiFi and WiMAX. (7)

**OR**

- X.** (a) Describe about RFID (Radio Frequency Identification) technology. (8)  
(b) Explain about GSM Technology in Mobile communication. (7)

\*\*\*\*\*