

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2023**

**DATA COMMUNICATION**

[Maximum Marks: **100**]

[Time: **3 Hours**]

**PART-A**

[Maximum Marks: **10**]

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

1. Define Topology?
2. List any two types of Noise.
3. Give two examples for Guided Media.
4. What is Hamming Distance?
5. What are the different types of frames in HDLC protocol? (5 x 2 = 10)

**PART-B**

[Maximum Marks: **30**]

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

1. With neat diagram explain about the components of Data Communication.
2. List the advantages and disadvantages of Local Area Network.
3. Describe Amplitude Modulation with a neat diagram.
4. Explain any two types of Unguided Transmission Media.
5. Compare Circuit Switching and Packet Switching.
6. Explain Wireless Propagation.
7. Explain Stop and Wait flow control. (5 x 6 = 30)

**PART-C**

[Maximum Marks: **60**]

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

**UNIT – I**

- III. Draw and explain ISO-OSI Layered architecture with a neat diagram. (15)

**OR**

- IV. a. Explain different Data Representation forms. (6)
- b. Draw and explain Star and Mesh topologies in a network. (9)

**UNIT – II**

- V. a. Explain Pulse Code Modulation. (9)
- b. With a neat diagram explain Wavelength Division Multiplexing. (6)

**OR**

- VI. a. Explain Digital to Analog conversion methods ASK and FSK. (8)
- b. Compare Serial Transmission and Parallel Transmission. (7)

**UNIT- III**

- VII. a. Explain the physical structure and working principle of Twisted Pair Cable. (9)
- b. List the features of Radio Waves. (6)

**OR**

- VIII. a. Explain datagram and virtual circuit methods in Packet Switching with a neat sketch. (9)
- b. Draw and explain Crossbar Switch. (6)

**UNIT - IV**

- IX. a. Explain checksum error-detection method. (8)
- b. Explain Go-back-N ARQ and Selective Repeat ARQ with a neat diagram. (7)

**OR**

- X. a. Draw and explain HDLC frame format. (7)
- b. Explain the following Random Access Protocols. (8)
  - 1. ALOHA
  - 2. CSMA/CD.

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