

Duration: 1 Hour

Instruction for the Candidate: -

Attempt All Questions.

Each question carries equal marks

(1*5 = 5)

Q1. Differentiate between:

- a. Full-Duplex and Half-Duplex Transmission mode
- b. Step-Index Multimode Fiber and Graded-Index Multimode Fiber
- c. Frequency shift keying and Phase shift keying
- d. Synchronous TDM and statistical TDM
- e. Pulse Code Modulation and Delta Modulation

Q2. Draw the pulse diagram for the bit stream 110011000011 using the following encoding schemes: (2)

- a. Manchester Encoding
- b. NRZ-I

Q3. Match the following to one or more layers of TCP/IP model: (2)

- a. Transforming bits to electromagnetic signals.
- b. Responsibility for handling frames between adjacent nodes.

Q4. A digital signal with 8 levels needs to transmit on a noiseless channel. Assuming the channel bandwidth is 100KHz. Find the maximum data rate of the signal. (2)

Q5. Four 1-Kbps connections are multiplexed using Time Division Multiplexing. A unit is 1 bit. Find the following: (4)

- a. The duration of 1 bit before multiplexing
- b. The transmission rate of the link
- c. The duration of time slot
- d. The duration of a frame