

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is allowed

Q.No	Question	CO	Marks
Q1	How a telephone communication system can function as both a point-to-point connection and a multipoint connection , providing a clear example for each scenario.	CO1	[3]
Q2	A communication link has a bandwidth of 10 Mbps and a propagation delay of 20 ms . If the required link efficiency is 80% , calculate the minimum frame size required to achieve this efficiency.	CO1	[3]
Q3	(a) Consider an 8-bit input sequence of 01001110, assuming previous signal before starting of the data was positive. Draw the signal waveform of the following "line coding" schemes: (i) Unipolar NRZ (ii) NRZ-L (iii) NRZ-I, (iv) RZ, (v) Manchester and (vi) Differential Manchester.	CO1	[3]
Q4	For a Block Code $C(n=3, k=2)$ where the codeword is generated using even parity on the dataword. Where n = number of codeword bits and k = number of dataword bits Describe and justify (a) The number of bits of error that the code can surely detect. (b) The number of bits of error that the code can surely correct.	CO2	[3]
Q5	Consider a 250 Mb data is transmitted over 25 Mbps bandwidth link. Suppose the data is divided into 6 frames through 0 to 5 have been transmitted. Now, imagine that 1, 3, 5 times out and acknowledgement for 2, 4 is lost. For this scenario, draw the timing window and find the outstanding packets in sender's and receiver's window using: Go-back-n ARQ Selective Repeat ARQ.	CO2	[3]