

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP2023)

CLASS: BTECH
BRANCH: ECE

SEMESTER : VI
SESSION : SP2023

SUBJECT: EC351N DATA COMMUNICATION

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

			CO	BL
Q.1(a)	Differentiate between point-to-point direct link and multipoint guided configuration.	[2]	CO-1	4
Q.1(b)	Describe inter-symbol interference. How it is caused and How it can be minimized.	[3]	CO-1	2
Q.2(a)	Find out the relationship between data rate and baud rate. What will be the minimum and maximum normalized baud rate that can be obtained using Manchester coding. For which bit pattern those baud rate will come?	[2]	CO-1	2
Q.2(b)	Write down the design goal of scrambling technique. Explain B8ZS coding scheme with example.	[3]	CO-1	2
Q.3(a)	With suitable circuit condition explain the loop-back testing in EIA-232 Interfacing standard	[2]	CO-1	2
Q.3(b)	Find the frame to be transmitted using CRC for a message $M = 1010111001$, the pre defined divisor is $X^5 + X^3 + X^2 + 1$.	[3]	CO-1	3
Q.4(a)	Write down the types of error that can occur in Data transfer and how it can be rectified.	[2]	CO-2	2
Q.4(b)	In sliding window flow control 3 bits are used to represent the frame number. Data transfer is happening from station A to station B starting with F0. The following sequence of events has happened. A has sent F0, F1, F2, F3, F4 B had received F0 and F1 and Sent an Acknowledgement RR2 A Received RR2 and sent F5 F6 B Received F3,F4, F5,F6 and sent an acknowledgement RR5. Draw the diagrammatic picture of this process and indicate the position and size of the window in transmitter and receiver.	[3]	CO-2	4
Q.5(a)	Justify the necessity of data transparency in HDLC. Explain how it is achieved?	[2]	CO-2	4
Q.5(b)	With suitable diagram explain the following HDLC operation i. Two way data exchange ii. Error recovery	[3]	CO-2	3

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