BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2024)

CLASS: BTECH **SEMESTER : V**
BRANCH: ECE **SESSION : MO/2024**

SUBJECT: EC307R 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)	What is meant by Inter Symbol Interference? How it is caused? How it can be minimized?	[2]	CO-1	2
Q.1(b)	What is meant by E_b/No ratio. What is the effect of signal strength and data rate on it. How E_b/No is related to achievable spectral efficiency?	[3]	CO-1	4
Q.2(a)	Draw the time sequence diagram for service primitives in confirmed services. Explain the primitives used in this service.	[2]	CO-5	2
Q.2(b)	With suitable diagram compare between OSI and TCP/IP.	[3]	CO-2	4
Q.3(a)	Define hamming distance. Where it is used? Find out the Hamming distance between A and B where A=1011010101, B = 1101001010.	[2]	CO-1	3
Q.3(b)	Define Baud rate. Find the relationship between data rate and baud rate. In Manchester coding, find out the bit patterns for which the minimum and maximum baud rate will come.	[3]	CO-1	2
Q.4(a)	What is loopback testing? Write down the circuit condition for Remote loop back testing.	[2]	CO-1	2
Q.4(b)	Find the frame to be transmitted using CRC for a message M = 1010110101, the pre defined devisor is X^5+X^4+X+1.	[3]	CO-1	3
Q.5(a)	Define utilization efficiency. Explain how the link is utilized in Stop and wait mechanism when the propagation time is greater than the frame transmission time.	[2]	CO-2	4
Q.5(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 B had received F0 , F1,F2 and Sent an Acknowledgement RR2 A Received RR2 and sent F3,F4,F5 B Received F3,F4, F5 and sent an acknowledgement RR3. A Received RR3 Draw the diagrammatic picture of this process and find out the window position in A and B.	[3]	CO-2	3

::::::23/09/2024::::::M