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

CLASS: B.TECH **SEMESTER : V**
BRANCH: AIML **SESSION : MO/2025**

SUBJECT: AI323 DATA COMMUNICATION AND COMPUTER NETWORKS

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 a port address, a logical address & a physical address.	[2]	1	4
Q.1(b)	Explain the functioning of TCP/IP architecture in detail with diagrams.	[3]	1	2
Q.2(a)	What is meant by E_b/N_o ratio? What is effect of signal strength & data rate on it?	[2]	2	2
Q.2(b)	Differentiate between a) Half duplex transmission & full duplex transmission b) LAN & WAN c) Communication and Transmission	[3]	1	4
Q.3	Discuss the major transmission impairments. How do they affect signal quality?	[5]	2	2
Q.4(a)	Explain the concept of channel capacity. Discuss the Shannon capacity formula.	[2]	2	3
Q.4(b)	Write the physical description and transmission characteristics of satellite microwave.	[3]	2	2
Q.5	Draw the signal waveforms when 001110011 is transmitted using the following: NRZ-L, NRZ – I, Bi-Polar AMI, Manchester and Differential Manchester	[5]	3	3

:::::16/09/2025 :::::M