Total No. of Questions: [04]

Total No. of Printed Pages: [02]

PRN No.	

PAPER CODE	U124-345

May 2024 (ENDSEM) EXAM

F.Y. B.TECH. (SEMESTER - II)

COURSE NAME: PRINCIPLES OF DATA COMMUNICATION

BRANCH: COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE)

COURSE CODE: CA12235

(PATTERN 2023)

Time: [1Hr. 30 Min]

[Max. Marks: 40]

(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed.**
3) **Use suitable data wherever required.**
4) **All questions are compulsory. Solve any one sub question from each Question 1 and 2 and any three sub questions each from Questions 3 and 4.**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) With the help of a neat diagram demonstrate the process of data communication and its components.	[5]	1	Understand
	b) Illustrate the concept of Noiseless Channel and Noisy Channel.	[5]	1	Understand
Q2	a) Compare between Packet Switching and Circuit Switching based on following parameters: i)Connection ii) Flexibility iii) Data Processing iv) Usage v) Implementation Layer	[5]	2	Analyze
	b) List and elaborate various Unguided Media Techniques used for data transmission.	[5]	2	Analyze
Q.3	a) A block of 32 bits has to be transmitted. Demonstrate how the 32 bits block is transmitted to the receiver using Longitudinal Redundancy Check (LRC). (Even Parity) Block of 32 bits: 11100111 11011101 00111001 10101001.	[5]	3	Apply
	b) Construct a binary sequence=101001110 by encoding it with Bipolar Encoding (NRZ and RZ) & Elaborate Bipolar encoding Technique.	[5]	3	Apply
	c) Given a scenario of data transmission, how would you identify whether an error encountered is a single bit error or a burst error?	[5]	3	Apply
	d) A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is x4+x+1. Compute the actual bit string transmitted.	[5]	3	Apply

Q.4	a) Applying following parameters compare TCP and UDP. i) Type of Connection ii) Header Size iii) Reliable iv) Acknowledgment	[5]	4	Apply
	b) Demonstrate the roles and responsibilities of Transport layer and list the different protocols of Transport Layer.	[5]	4	Apply
	c) Build a Data communication System for sending a data from the sender side Process A to the Receiving side Process B. Represent the flow of data with respect to Port address, Logical Address & Physical address.	[5]	4	Apply
	d) Construct the OSI model and examine the functionality of each layer.	[5]	4	Apply