Total No. of Printed Pages: 02

PRN No.	

PAPER CODE	U314-244 (ESE)

(AY:2024-25) December 2024 (ENDSEM) EXAM

TY (SEMESTER - I)

COURSE NAME: Data Communication and Networking | **Branch: Computer Science and Engineering (Artificial Intelligence)** | **COURSE CODE: CAUA31204**

(T.Y - PATTERN 2020)

Time: [1Hr 30 Min] **[Max. Marks: 40]**

(*) Instructions to candidates:

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

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) List and Explain the Transmission Impairment factors. Discuss with the help of signal representation how this factor affects the original signal.	[5]	1	Understand
	b) Explain the Nyquist Bit Rate for a noiseless channel and the Shannon Capacity for a noisy channel.	[5]	1	Understand
	c) Explain the following Performance Measures with example. i) Bandwidth ii) Throughput iii) Latency (delay)	[5]	1	Understand
Q2	a) List and elaborate various Unguided Media Techniques used for data transmission.	[5]	2	Analyze
	b) Elaborate the phases of the circuit switching Network. Analyze the delay and efficiency of a circuit-switched network	[5]	2	Analyze
	c) Draw and explain the construction of Fiber-Optic cable. List down the Benefits and Drawbacks of Fiber-Optic cable.	[5]	2	Analyze

Q3	a) Identify and explain the responsibilities and functions of each layer of OSI Model. List down the protocols of each layer.	[5]	3	Apply
	b) Applying following parameters compare TCP and UDP. i) Type of Connection ii) Header Size iii) Reliable iv) Acknowledgment v) Speed	[5]	3	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 considering Port address, Logical Address & Physical address (Layer Representation).	[5]	3	Apply
Q4	a) Differentiate between HDLC and PPP	[5]	4	Analyze
	b) Analyze the efficiency of the Go-Back-N protocol. How does it compare to other protocols like Stop-and-Wait?	[5]	4	Analyze
	c)Examine the process of generating a CRC codeword for given dataword 100100 and divisor 1101. (Perform the check on receiver side also.)	[5]	4	Analyze