DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (DATA SCIENCE)

UNIT TEST-I

Class: TE **Semester: V** **Subject: CN**

Date: 08.09.2023 **Time:10:00am -11:30am** **Max marks: 40**

Note the following instructions

1. **Attempt all questions.**
2. **Draw neat diagrams wherever necessary.**
3. **Write everything in Black ink (no pencil) only.**
4. **Assume data, if missing, with justification.**

Q.N	Questions	MARKS	CO	Blooms Taxonomy Level	PO
Q.1.	**Attempt any two.**				
a)	Explain different types of guided transmission media.	[5]	CO1	L2	
b)	Illustrate different types of topologies.	[5]	CO1	L2	
c)	Compare and contrast circuit switching and packet switching.	[5]	CO1	L2	
d)	Describe ISO/OSI reference model with diagram.	[5]	CO1	L2	
Q.2.	**Attempt any two**				
a)	Classify different framing methods and solve the below: The following character encoding is used in a data link protocol: A: 01000111; B: 11100011; FLAG: 01111110; ESC: 11100000 Show the bit sequence transmitted (in binary) for the four-character frame: A B ESC FLAG when each of the following framing methods are used: (a) Character count (b) Flag bytes with byte stuffing. (c) Starting and ending flag bytes, with bit stuffing.	[10]	CO2	L3	PO2, PO3, PO5

b)	Identify why Data link protocols always put the CRC in a trailer rather than in a header. Given the data words 1101010110, show generation of CRC at sender site by using the devisor 110101.	[10]	CO2	L3	PO2, PO3, PO5
c)	In SR protocol, suppose frames through 0 to 4 have been transmitted. Now, imagine that frame:0 times-out, 5 (a new frame) is transmitted, frame:1 times-out, frame:2 times-out and 6 (another new frame) is transmitted. At this point, what will be the outstanding packets in sender's window? On the basis of above example Justify selective repeat (SR) is better than Go Back N.	[10]	CO2	L3	PO2, PO3, PO5
Q.3.	**Attempt any one.**				
a)	Summarise in detail about Classful addressing and use of subnetting. Find the class of each address. i. 00000001 00001011 00001011 11101111 ii. 11000001 10000011 00011011 11111111 iii. 14.23.120.8 iv. 252.5.15.111	[10]	CO3	L3	PO2, PO3, PO5
b)	Demonstrate IPV4 header format and solve the questions below. i. An IP packet has arrived with the first 8 bits as shown: 01000010.The receiver discards the packet. Why? ii. A packet has arrived in which the offset value is 100. What is the number of the first byte? Do we know the number of the last byte? Justify your answer.	[10]	CO3	L3	PO2, PO3, PO5