REG.NO.:

VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2024-2025

SLOT: D1+TD1

Programme Name & Branch	:	**B.Tech (CSE & Specializations)**
Course Code and Course Name	:	**BCSE308L & Computer Networks**
Faculty Name(s)	:	**Common for all**
Class Number(s)	:	**Common for all**
Date of Examination	:	**16.10.2024**
Exam Duration	:	**90 minutes** **Maximum Marks: 50**

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyze, 5 – Evaluate, 6 – Create)
- Course Outcomes
  3. Identify and analyze error and flow control mechanisms in data link layer.
  4. Design sub-netting and analyze the performance of network layer with various routing protocols.

Q. No	Question	M
1.	a. Draw the sender and receiver windows for a system using Selective Repeat ARQ (3-bits for sequence number), given the following: i) Frame 0 is sent; frame 0 is acknowledged. ii) Frame 1 and 2 are sent; frames 1 and 2 are acknowledged. iii) Frame 3, 4 and 5 are sent; frame 4 is acknowledged; timer for frame 5 expires. iv) Frame 5, 6 and 7 are sent; frames 4 through 7 are acknowledged.	7
	b. There are n stations in a slotted LAN. Each station attempts to transmit with a probability p in each time slot. What is the probability that ONLY one station transmits in a given time slot?	3
2.	Assume an organization's network starting address is 10.10.0.0/16 and divided into equal no. of addresses for 16 blocks. Find the following: i. Class _____and default Subnet mask for the class _____ ii. No. of addresses in each subnet works_____ iii. Subnet mask of each subnetwork _____ iv. CIDR of each subnetwork _____ v. Write Starting address and end address of each subnetwork. vi. How many bits borrowed for subnetwork from host bits?	10
3.	a. An IP datagram has arrived with partial information the header 45000054 00030000 2006.... i. What is the header size ii. Are there any options in the packet iii. What is the size of data iv. Is the packet fragmented v. How many more routers can the packet travel to?	8

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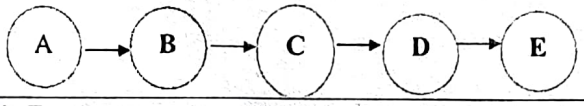
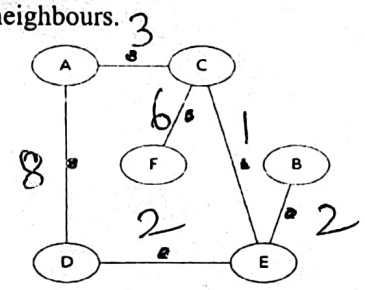
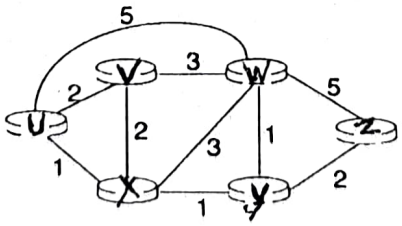
	vi. What is the protocol number of the payload being carried by the packet?	
	b. Identify the status of flags in IP header format for different scenarios listed below: i. Datagram size=200 bytes and MTU= 400 bytes ii. Datagram size=1500 bytes and MTU= 400 bytes	2
4.	a. Routers 1 to 5 are connected as shown below. Exhibit the count to infinity problem if node A fails. Assume the distance between the routers are 1. What is the solution to this problem? 	5
	b. For the network on the right, give distance vector tables when, each node knows only the distances to its neighbours. 	5
5.	Explore the below mentioned formulate the routing table using the below given equation, where each router shares its knowledge of its neighbors with every other router in the internetwork. $D(v) = \min(D(v), D(w) + c(w,v))$ w- source node; v- destination node c(w,v)-link cost from node w to v D(v)-current value of cost from source to destination 	10

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