REG.NO.:

VIT

Vellore Institute of Technology

SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS

CONTINUOUS ASSESSMENT TEST - II

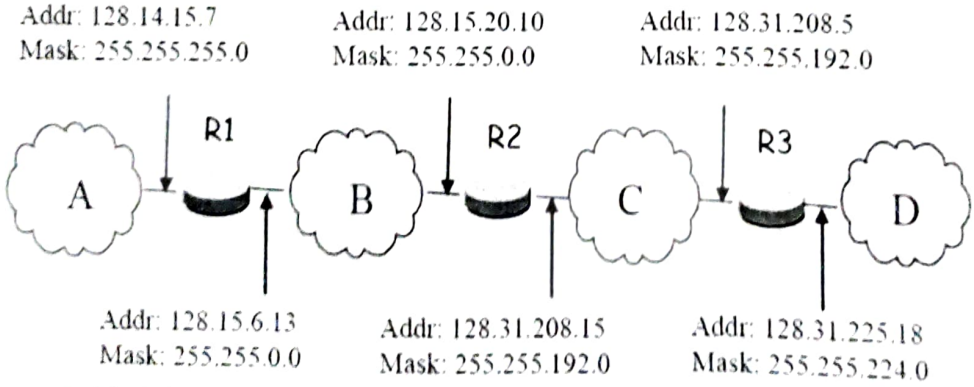
FALL SEMESTER 2025-2026

SLOT: B2+TB2

Programme Name & Branch : B.Tech-IT
Course Code and Course Name : BITE305L – Computer Networks
Faculty Name(s) : Dr.VIJAYAN R, Dr M. PRIYA, Dr. USHA DEVI G
Class Number(s) : VL2025260103130, 3128, 3124
Date of Examination : 06-10-2025
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 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes (Type the CO statements covered in this question paper. Use the CO number as per the syllabus copy)
  CO3. Identify and analyze data link layer error, flow control, and MAC issues.
  CO4. Develop multiple options for host to network addressing, managing sub networks and internetworking.

Q. No	Question	M	CO	BL
1.	Station A needs to send a message consisting of 9 frames to Station B using a sliding window size of 3 and GoBack-N error control strategy. All packets are ready and immediately available for transmission. a. Construct a sender window at every step for the transmission of frames and ACK's received, if every 5th frame that A transmits gets lost, but no ACKs from B ever get lost. b. Evaluate the number of frames that A will transmit to send the message to B?	10	3	5
2.	Consider the network below. Addr, specify the IP addresses assigned to the router interfaces. Mask specifies a subnet mask of the router interfaces.  a) Find the range of addresses for A, B, C and D subnets. b) Two hosts h1 and h2 have to be configured with addresses 128.31.200.200 and 128.15.155.15. Find out the network to be configured or placed among A, B, C and D for the above hosts h1 and h2?	10	4	4

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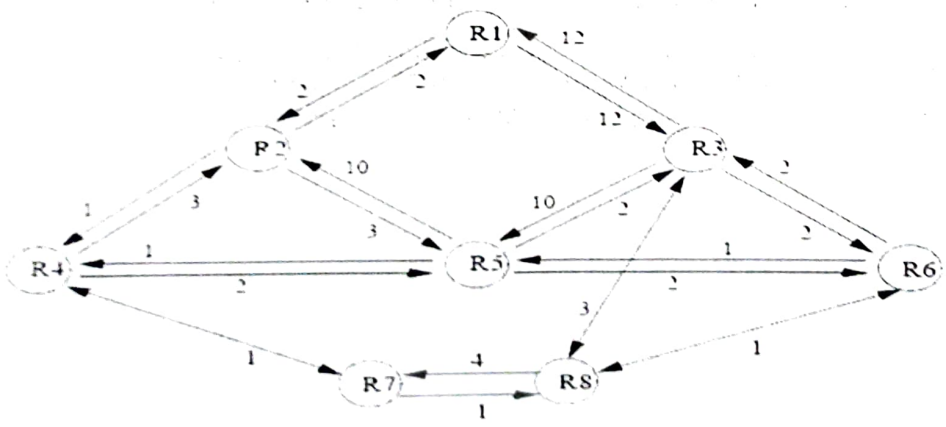
3.	A block of addresses 165.85.0.0/16 is granted to an organization. They want to distribute these blocks to the groups as follows: a) The first group has 200 medium-sized businesses; each needs 128 nodes. b) The second group has 400 small businesses; each needs 32 nodes. c) The third group has 1000 households; each needs 16 nodes. Design the CIDR address allocation for each group of businesses. Evaluate the number and range of allocations that are still available after these allocations.	10	4	5
4.	a) A packet has arrived with the following information in the header (in hexadecimal): 60 01 da 31 00 20 06 80 fe 80 00 00 00 00 00 00 dd af a2 5c 7c 55 1a 8d fe 80 00 00 00 00 00 00 e5 52 80 1f a5 bb aa 38 i. What is the version of this packet? ii. What is the Hop Limit of this packet? iii. What is the size of the Payload data bytes? iv. Identify the Next Header field and its type?	4	4	4
	b) A Packet containing 5000 bytes of data is to be delivered across two networks interconnected by a router. The first network is FDDI; the second is Fast Ethernet. Evaluate the fragments of the packet delivered to the network layer in the destination network only. Assume all IP headers are 20 bytes.	6		
5.	Consider the network of eight routers below, with edge weights labelled  Show how the step-by-step operation of the Link State routing algorithm works for the router ***R1*** by computing an iteration table. Compute the Shortest Path tree and the routing table for router R1.	10	4	6

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