



VIT

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

REG.NO.:

SCOPE
CONTINUOUS ASSESSMENT TEST - II
WINTER SEMESTER 2024-2025

SLOT:C1

Programme Name & Branch	: B.Tech CSE with Business Systems	
Course Code and Course Name	: CBS3001, Computer Networks	
Faculty Name(s)	: Dr M.A.Saleem Durai	
Class Number(s)	: VL2024250505158	
Date of Examination	: 18-03-2025 -AN (C1 Slot)	
Exam Duration	: 90 minutes	Maximum Marks: 50

General instruction(s):

- Answer All Questions
- Course Outcomes:

CO2. Contrast different types of switching networks and analyse the performance of network

CO3. Implement various error detection and correction mechanisms, flow control mechanisms and various routing protocols

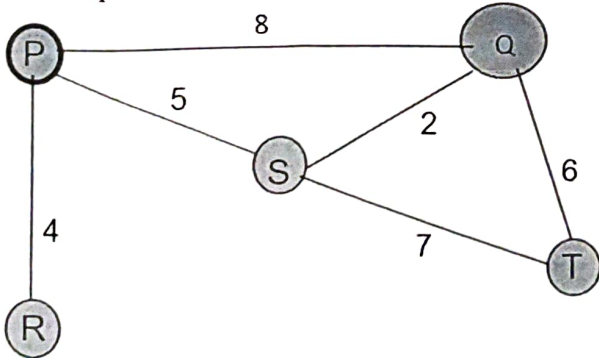
CO4. Design subletting and analyse the performance of network layer, Construct and examine various routing protocols.

Q. No	Question	M	CO	BL
1.	A Go Back N ARQ sliding window protocol is used between two nodes A and B with a 3-bit sequence number. Write the contents of the sender's and receiver's sliding windows at each time instant for the given scenario: (i) Initial Position, before transmission of any frames. (ii) T1 (time unit), A sends 2 frames. (iii) T2, B sends 1 ACK frame. (iv) T3, A receives ACK frame. (v) T4, A sends next 2 frames. (vi) T5, B receives 2 frames and then a corrupted frame (vii) T6, A receives the ACK frame and sends next 5 frames. (viii) T7, B receives the frames Whether the frames will be accepted? Calculate the sender and receiver window size, represent the window position and flow of frames for both A, B using flow diagram.	10	3	3
2.	(i) Suppose an Organisation is having three labs in different floors and each lab, includes Finance, HR and IT departments how Virtual LANs are used to configure and connect the systems belonging to the same department? (ii) Distinguish between Synchronous and Statistical TDM. (iii) Explain how FHSS and DSSS achieves bandwidth spreading?	4+ 4+ 2	2	4



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3.	(i) Five equal-size datagrams belonging to the same message leave to the destination one after the other. However, they travel through different paths as shown in the following table: <table><tr><th>Datagram</th><th>Path Length (Km)</th><th>Visited switches</th></tr><tr><td>1</td><td>1200</td><td>1,2,4,5</td></tr><tr><td>2</td><td>1600</td><td>1,4,5</td></tr><tr><td>3</td><td>900</td><td>1,2,5</td></tr><tr><td>4</td><td>750</td><td>1,4,5</td></tr><tr><td>5</td><td>1900</td><td>1,3,4,5</td></tr></table> We assume that the delay for each switch is 12,15, 6, 9, and 18 milliseconds processing delay is 12,15,20,8 and 17 milliseconds respectively. Assuming that the propagation speed is 2×10^8 m/s. Find the order of datagrams arrives at the destination and the delay for each. Ignore any other delays in transmission. (ii) Discuss the steps in establishing a Virtual Circuit Network with suitable example.	Datagram	Path Length (Km)	Visited switches	1	1200	1,2,4,5	2	1600	1,4,5	3	900	1,2,5	4	750	1,4,5	5	1900	1,3,4,5	6	2	3
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4.	An ISP is granted a block of addresses starting with 168.78.0.0/16. The ISP wants to distribute these blocks to customers as follows. a. The first group has 150 medium-size businesses; each need 64 addresses. b. The second group has 250 small businesses; each need 32 addresses. c. The third group has 450 households; each need 8 addresses. d. Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations.	10	4	4																		
5.	Find the least cost route from Node P to every other node using Distant Vector Routing. Suppose if node is removed from the network what are problems involved and provide the solutions for it. 	10	4	4																		
