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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

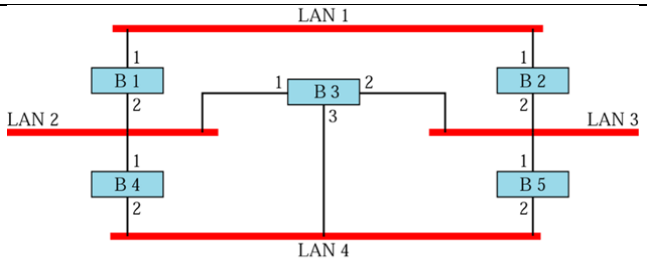
July 2023 Semester End Main Examinations

Programme: B.E. **Semester: VI**
Branch: Electronics and Communication Engineering **Duration: 3 hrs.**
Course Code: 19EC6PCCCN **Max Marks: 100**
Course: Computer Communication Networks **Date: 05.07.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	*CO*	*PO*	Marks
1	a)	In TCP/IP protocol suit, describe the following concepts in detail i) Encapsulation & Decapsulation ii) Multiplexing and Demultiplexing iii) The need for the four addresses iv) List various protocols in TCP/IP layers.	*CO1*	*PO1*	**10**
	b)	Distinguish between synchronous and statistical TDM with respect to addressing, slot size, synchronous bits and bandwidth.	*CO1*	*PO1*	**10**
		UNIT - II			
2	a)	Outline different frame formats with control field used by HDLC. Explain the control fields of all the frames in detail.	*CO1*	*PO1*	**10**
	b)	Discuss the following aspects of error detection and correction mechanisms used in CRC: a. What is CRC and how does it work? b. How are errors detected using CRC? c. How does CRC handle error correction? d. What are the advantages and limitations of CRC for error detection and correction?	*CO1*	*PO1*	**10**
		UNIT - III			
3	a)	Discuss the key differences between CSMA, CSMA/CD, and CSMA/CA in terms of collision detection, collision avoidance, channel efficiency, the advantages and limitations of each protocol.	*CO2*	*PO2*	**10**
	b)	Discuss the key milestones in the evolution of Ethernet, highlighting significant improvements in terms of speed, media types, and network topologies.	*CO2*	*PO2*	**10**
		OR			
4	a)	Describe the fundamental principles of Bluetooth LAN Technology including its Architecture and Layers	*CO1*	*PO1*	**10**
	b)	Provide an overview of the Spanning Tree Algorithm and its purpose in preventing loops in network topologies. Find the spanning tree for the system in Figure1.	*CO3*	*PO3*	**10**

			 Figure 1.			
			UNIT - IV			
	5	a)	Find the class of each address. a. 00000001 00001011 00001011 11101111 b. 11000001 10000011 00011011 11111111 c. 14.23.120.8 d. 252.5.15.111	*CO1*	*PO1*	**04**
		b)	An ISP is granted a block of addresses starting with 190.100.0.0/16 (65,536 addresses). The ISP needs to distribute these addresses to three groups of customers as follows: a. The first group has 64 customers; each need 256 addresses. b. The second group has 128 customers; each need 128 addresses. c. The third group has 128 customers; each need 64 addresses. Design the subblocks and find out how many addresses are still available after these allocations.	*CO3*	*PO3*	**06**
		c)	Illustrate IPv4 datagram format and explain its fields in detail.	*CO1*	*PO1*	**10**
			OR			
	6	a)	Discuss the IGMP message types and their functions with neat a diagram.	*CO1*	*PO1*	**10**
		b)	A network has got the following topography 1. Cost between node A and B is 2, 2. Cost between A and D is 3, 3. Cost between D and E is 5, 4. Cost between B and E 4, 5. Cost between B and C is 5, 6. Cost between E and F is 2, 7. Cost between C and F is 4, 8. Cost between F and G is 1. 9. Cost between C and G is 3. Construct the network. Determine the Initial Distance Vector for each of the Node, make changes in the distance vector of B after it receives a Copy of A's Vector and E's Vector.	*CO3*	*PO3*	**10**
			UNIT - V			
	7	a)	Summarize the features of TCP.	*CO1*	*PO1*	**04**
		b)	Describe the open-loop congestion control mechanisms in detail.	*CO1*	*PO1*	**06**
		c)	Discuss the different techniques used to improve the Quality of Service	*CO1*	*PO1*	**10**

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