U.S.N.										

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

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: V**

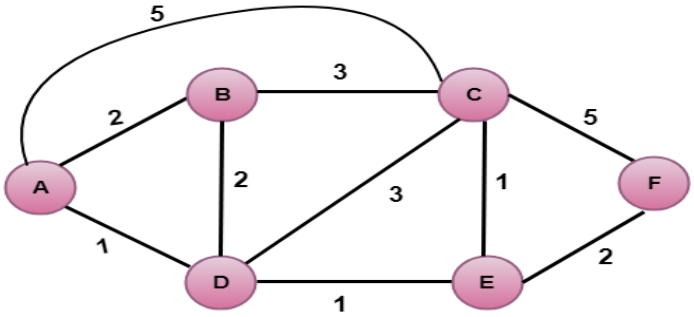
Branch: CSE (IoT & Cybersecurity including Blockchain) **Duration: 3 hrs.**

Course Code: 23IC5PEACN **Max Marks: 100**

Course: ADVANCED COMPUTER NETWORK

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)		Demonstrate link state routing algorithm to compute the least cost path from source to destination where A is the source node 	*CO2*	*PO1*	**10**
	b)		Compare and contrast two version of IP protocol with the neat diagram for both	*CO1*	*PO1*	**10**
			OR			
2	a)		Analyze the ARP packet format to identify the key fields involved in mapping an IP address to an Ethernet address, and explain how each field contributes to the address resolution process.	*CO1*	*PO1*	**10**
	b)		Apply your understanding of the BGP protocol to explain how it establishes and maintains routing paths between different autonomous systems, using diagrams to support your explanation.	*CO3*	*PO2*	**10**
			UNIT - II			
3	a)		Describe with TCP header format along with flags which are used to establish and terminate a TCP connection	*CO2*	*PO1*	**10**
	b)		Discuss the reasons causing silly window syndrome and how Nagle's algorithm is used to avoid the same	*CO2*	*PO1*	**10**
			OR			

	4	a)	With a neat state transition diagram explain TCP connection establishment and termination.	*CO2*	*PO1*	**10**
		b)	Illustrate the basic algorithm for adaptive re-transmission and how karn's algorithm provides a solution for calculating the timeout.	*CO2*	*PO1*	**10**
			UNIT - III			
	5	a)	Compare the two congestion control algorithms AIMD and slow start and discuss how these algorithms work together	*CO3*	*PO2*	**10**
		b)	With a sequence diagram explain how duplicate acknowledgements read to a fast re-transmit	*CO2*	*PO1*	**10**
			OR			
	6	a)	Analyze the two congestion avoidance mechanisms by explaining their operation and effectiveness. Evaluate the role of the router in detecting, controlling, and mitigating network congestion, and illustrate how these strategies are implemented in practice.	*CO3*	*PO2*	**10**
		b)	Illustrate FIFO and fair queuing for handling traffic from different flows	*CO2*	*PO1*	**10**
			UNIT - IV			
	7	a)	Identify and describe the key SNMP protocol operations used for querying agents in a network management system. Provide examples to illustrate each operation.	*CO3*	*PO2*	**10**
		b)	With a neat diagram discuss internet standard management framework	*CO1*	*PO1*	**10**
			OR			
	8	a)	What are MIB objects list its types and explain the tree structure of a Management Information Base (MIB) with an example? Additionally, illustrate the syntax of a MIB object using a specific example.	*CO1*	*PO1*	**10**
		b)	Identify and describe the primitive and constructed data types used in ASN.1. Explain their purposes and provide examples for each type	*CO3*	*PO2*	**10**
			UNIT - V			
	9	a)	Explain the high-level architecture of UMTS and GSM with a diagram	*CO1*	*PO1*	**10**
		b)	Analyze how a mobile phone uses soft handoff, leveraging the frequency reuse principle, to maintain call integrity when moving across cell boundaries	*CO3*	*PO2*	**10**
			OR			
	10	a)	With a neat diagram illustrate system architecture evolution of LTE	*CO1*	*PO1*	**10**
		b)	Demonstrate the communication protocols used by the internet showing their mapping on to the layers of OSI model	*CO3*	*PO2*	**10**

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