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: Information Science and Engineering **Duration: 3 hrs.**
Course Code: 23IS5PCCN1 / 22IS5PCCN1 / 20IS5PCDCN **Max Marks: 100**
Course: Computer Networks – 1

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)	With a neat diagram explain OSI reference model.	CO1	PO1	10
	b)	Represent the sequence "0101011" using Unipolar, Polar NRZ-L, Polar NRZ-I, Polar RN and Manchester coding schemes	CO2	PO2	10
		OR			
2	a)	With a neat diagram explain Half -Duplex and Full-Duplex Transmission.	CO1	PO1	8
	b)	Explain differences between Synchronous and Asynchronous Transmission.	CO1	PO1	5
	c)	Explain the Pulse Code Modulation in detail.	CO1	PO2	7
		UNIT - II			
3	a)	Demonstrate different Design issues of data link layer.	CO2	PO2	10
	b)	Discuss algorithm for computing CRC and illustrates the calculation of CRC for a frame 1101011111 using the generator $G(x) = x^4 + x + 1$.	CO2	PO2	10
		OR			
4	a)	Demonstrate Simplex Stop-and-Wait Protocol with a neat diagram.	CO2	PO2	10
	b)	Describe 1-bit Sliding Window protocol with neat diagram.	CO2	PO1	10
		UNIT - III			
5	a)	Compare Static and Dynamic channel allocation with an example.	CO1	PO1	10
	b)	Explain the CSMA Protocol with an example.	CO2	PO1	10
		OR			

	6	a)	Compare Ethernet Physical layer and Ethernet-Sub MAC layer.	*CO2*	*PO1*	**6**
		b)	Explain hidden terminal and exposed terminal problem in IEEE 802.11	*CO2*	*PO2*	**10**
		c)	Compare pure ALOHA and slotted ALOHA	*CO2*	*PO1*	**4**
			UNIT - IV			
	7	a)	Explain classful addressing system with a neat diagram.	*CO1*	*PO1*	**9**
		b)	Compare virtual circuits switching and datagram switching.	*CO2*	*PO1*	**6**
		c)	Explain the IPv4 header format	*CO1*	*PO1*	**5**
			OR			
	8	a)	Design a company network which consists of 4 departments connected. Perform subnetting to divide the network into four equal parts. The host IP address to be assumed is 192.168.1.0/24. For each of these subnetworks give the network address, broadcast address, first IP address assigned, the last IP address assigned and the subnet mask and CIDR.	*CO3*	*PO2*	**10**
		b)	Explain Best-effort delivery and encapsulation in Internet protocol	*CO1*	*PO2*	**10**
			UNIT - V			
	9	a)	Explain with header format of IPV6 addressing.	*CO1*	*PO1*	**8**
		b)	Discuss static routing and dynamic routing with an example.	*CO2*	*PO1*	**6**
		c)	Discuss different ICMP message types	*CO1*	*PO1*	**6**
			OR			
	10	a)	Explain DHCP protocol frame format with an example.	*CO1*	*PO1*	**10**
		b)	Discuss OSPF and RIP protocol characteristics in detail.	*CO2*	*PO2*	**10**

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