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

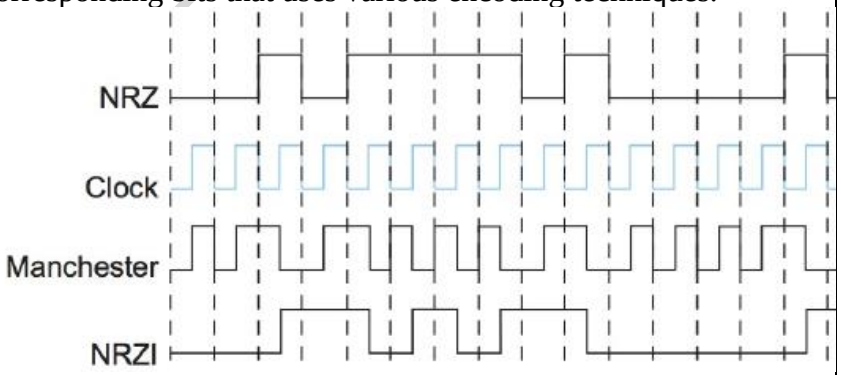
Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: III**
Branch: Artificial Intelligence & Machine Learning **Duration: 3 hrs.**
Course Code: 22AM3PCCNS **Max Marks: 100**
Course: COMPUER NETWORKS

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)	Illustrate OSI Model in detail.	CO1	PO1	**10**
	b)	Write a socket program to transfer text from client to the server.	CO1	PO1	**10**
		OR			
2	a)	Compare OSI and TCP/IP layered Architectures.	CO1	PO1	**10**
	b)	Illustrate various network devices that are required for designing a network.	CO1	PO1	**10**
		UNIT - II			
3	a)	Analyse the following diagram and convert the signals in to corresponding bits that uses various encoding techniques. 	CO2	PO1	**6**
	b)	Illustrate stop and wait protocol with timeline diagrams for the following four scenarios. (i) The ACK is received before the timer expires (ii) The original frame is lost (iii) The ACK is lost (iv) The timeout fires too soon.	CO2	PO2	**8**
	c)	Describe 802.15.1 Standard protocol.	CO1	PO1	**6**
		OR			

	4	a)	Illustrate the mechanism of checksum error method. Apply the same for the following data bit stream 10011001 | 11100010 | 00100100 | 10000100	*CO2*	*PO2*	**6**
		b)	Describe character stuffing and bit stuffing mechanism with an example.	*CO2*	*PO1*	**8**
		c)	Outline what factors contribute for successful and reliable transmission.	*CO2*	*PO1*	**6**
			UNIT - III			
	5	a)	A block of addresses is granted to a small organization. We know that one of the addresses is 201.12.33.37/28. What is the first address in the block? Find the last address for the block? Find the number of addresses?	*CO3*	*PO2*	**10**
		b)	In a network with ten hosts, the 6th host's IP address is 192.10.15.40. Identify the network id to which this host belongs to.	*CO3*	*PO2*	**10**
			OR			
	6	a)	Illustrate Classful addressing Scheme in detail.	*CO3*	*PO1*	**10**
		b)	Given the CIDR representation 100.1.2.35 / 20. Find the range of IP Addresses in the CIDR block.	*CO3*	*PO3*	**10**
			UNIT - IV			
	7	a)	Differentiate TCP and UDP Protocols including header formats.	*CO1*	*PO1*	**10**
		b)	What problem do Nagle's and Clarks algorithm solve?	*CO2*	*PO1*	**10**
			OR			
	8	a)	How do TCP protocol handle congestion?	*CO1*	*PO1*	**10**
		b)	Provide solution for the following two scenarios: i. when the sender receives three duplicate acknowledgments (ACKs) from the receiver. ii. Re-transmission timer of the sender expires.	*CO2*	*PO2*	**10**
			UNIT- V			
	9	a)	Write in detail about session initiation protocol.	*CO3*	*PO1*	**10**
		b)	Justify why both symmetric key cryptography and asymmetric key cryptography techniques are required for data protection.	*CO3*	*PO1*	**10**
			OR			
	10	a)	In what way RSA protocol different from Diffie Helman protocol	*CO3*	*PO1*	**10**
		b)	In a RSA cryptosystem, a participant A uses two prime numbers p = 13 and q = 17 to generate public and private keys. If the public key of A is 35, compute the private key of A.	*CO3*	*PO1*	**10**

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