CBCS SCHEME

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22MCA14

First Semester MCA Degree Examination, Dec.2023/Jan.2024
Computer Networks

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define Computer Networks. Explain the fundamental characteristics of data communication.	6	L1	CO1
	b.	With a neat diagram, discuss the categories of topology.	8	L1	CO1
	c.	With the help of a neat diagram, explain the different types of communication between two devices.	6	L2	CO1
		OR			
Q.2	a.	Explain the layers of ISO OSI model with a neat diagram.	10	L2	CO1
	b.	How networks are categorized? Explain LAN, WAN and MAN.	10	L2	CO1
		Module – 2			
Q.3	a.	A device sends 265 kbps over a noisless channel with a bandwidth of 20KHz. How many signal levels do we need?	4	L3	CO2
	b.	List and explain the causes of transmission impairments?	12	L2	CO2
	c.	Explain the truss bandwidth and throughput.	4	L2	CO2
		OR			
Q.4	a.	Explain sampling and Quantization of pulse code modulation?	8	L2	CO2
	b.	Discuss frequency shift keying in brief.	4	L2	CO2
	c.	For the following bit pattern 01001110, apply NRZ – L, NRZ – I, Manchester and differential Manchester encoder schemes.	8	L3	CO2
		Module – 3			
Q.5	a.	What is Multiplexing? With the help of a neat diagram? Explain frequency Division Multiplexing (FDM).	10	L2	CO3
	b.	Explain frequency Hopping Spread Spectrum (FHSS).	10	L2	CO3
		OR			
Q.6	a.	List all the characteristics of Virtual – circuit network.	5	L2	CO3
	b.	Explain in brief the three phases of a circuit switched network with a neat diagram.	9	L2	CO3
	c.	What is the role of routing table in datagram network? Explain.	6	L2	CO3

		Module – 4			
Q.7	**a.**	Solve CRC encoder and decoder considering the values for dataword = 1001 and divisor = 1011.	**8**	**L3**	**CO4**
	b.	Explain simple parity check code.	**6**	**L2**	**CO4**
	c.	Discuss the following : i) Error Detection ii) Error correction.	**6**	**L2**	**CO4**
		OR			
Q.8	**a.**	Suppose our data is a list of five 4-bit numbers that we want to send the set of numbers (7, 11, 12, 0, 6) to a destination. Apply checksum process at the sender side and at the receiver side.	**10**	**L3**	**CO4**
	b.	How Cyclic codes can understand, using polynomials? Explain with proper example.	**10**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	Explain how stop and wait protocol helps in achieving flow control.	**10**	**L2**	**CO4**
	b.	Discuss the working of Go-Back-N Automatic Report Request protocol.	**10**	**L2**	**CO4**
		OR			
Q.10	**a.**	Explain the working of selective Report ARQ.	**10**	**L2**	**CO4**
	b.	Discuss the working of Point-To-Point protocol.	**10**	**L2**	**CO4**

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