CBCS SCHEME

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22MCA14

First Semester MCA Degree Examination, June/July 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.	What is data communication? Explain components of a data communication systems.	10	L2	CO1
	b.	Define computer networks and categorize its types, advantages disadvantages.	10	L1	CO1
		OR			
Q.2	a.	Categorize the four basic topologies in terms of line configuration.	10	L2	CO1
	b.	Illustrate different layers in OSI model.	10	L2	CO1
		Module – 2			
Q.3	a.	Apply NRZ, NRZI, Manchester encoding to the following bit stream: 0010111101000010.	10	L3	CO1
	b.	Distinguish baseband transmission and broad band transmission.	10	L2	CO1
		OR			
Q.4	a.	Analyze the different methods for digital to analog conversion.	10	L4	CO2
	b.	Categorize and write various transmission modes with examples.	10	L2	CO2
		Module – 3			
Q.5	a.	Compare and write the techniques of circuit switching and message switching with examples.	10	L2	CO3
	b.	List and explain four major components of a packet switch and their functions.	10	L2	CO3
		OR			
Q.6	a.	Explore the services provided by the physical layer 2 with multiplexing and demultiplexing in brief.	10	L4	CO3
	b.	Illustrate spread spectrum and its two techniques with proper examples.	10	L2	CO3
		Module – 4			
Q.7	a.	A bit stream 11001001 is transmitted using the standard CRC method. The generator polynomial is $x^3 + 1$. i) What is the actual bit transmitted? ii) Suppose the third bit from the left is inverted during transmission. How will the receiver detect the error?	10	L3	CO4

	b.	Analyze the error detection technique of checksum and find what kind of arithmetic is used to add data item in checksum calculation.	10	L4	CO4
		OR			
Q.8	a.	Write the block coding and linear block coding with example.	10	L2	CO3
	b.	Write about Haming code and write how the technique of error correction is done using haming code by taking an example.	10	L3	CO3
		Module – 5			
Q.9	a.	What is framing? Explain the types of framing and methods of framing.	10	L2	CO2
	b.	What are the protocols discussed for noiseless channels with examples?	10	L1	CO2
		OR			
Q.10	a.	Compare and contrast the GO-Back-N ARQ protocol with selective repeat ARQ.	10	L4	CO4
	b.	Compare and contrast HDLC with PPP, which one is byte oriented, which one is bit oriented?	10	L4	CO4

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