Enrolment No. 102CTBMCS21220038

NATIONAL FORENSIC SCIENCES UNIVERSITY, DELHI CAMPUS

B. Tech. – M. Tech. Computer Science and Engineering (Cyber Security)

Semester- IV Term Assessment – 01

February, 2023

Subject Code: CTMTCSE SIV P2 **Date:**

Subject Name: Computer Networks

Time: 45 minutes **Total Marks: 25**

Instructions:

1. All questions are compulsory.
2. Number in bracket at the right represents marks.

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1) Differentiate between (5)

LAN, MAN and WAN

OR

Analog and Digital Signals

2) In brief discuss 7 layers of OSI Model. (5)

3) What are the advantages and disadvantages of various network topologies. (5)

4) Write a short on Transmission modes and Transmission media. (10)

----- End of Paper -----

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B. Tech. – M. Tech. Computer Science and Engineering (Cyber Security)

Semester- IV

Mid Semester Examination (April, 2023)

Subject Code: CTMTCSE SIV P2

Subject Name: Computer Networks

Time: 90 minutes **Total Marks: 50**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			Marks
Q.1	(a)	Explain hamming code technique with example.	04
	(b)	Differentiate between packet and circuit switching?	05
	(c)	What are the error detection techniques?	07
Q.2	(a)	Write a short note on TDMA, CDMA and FDMA.	06
	(b)	What are networking devices? How they are useful in networking?	06
	(c)	What are the multiple access protocols? Explain random access protocols in detail.	06
Q.3	(a)	What are flow control protocols? Explain sliding window protocol with an example?	08
	(b)	A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is x3+1.	
		1) What is the actual bit string transmitted?	08
		2) Suppose the third bit from the left is inverted during transmission. How will receiver detect this error?	

-END OF PAPER-

Seat No.: 7277 Enrolment No. 102CTBMCSE122038

NATIONAL FORENSIC SCIENCES UNIVERSITY

B.Tech. - M. Tech. Computer Science and Engineering (Cyber Security) - Semester - IV - July-2023

Subject Code: CTBTCSE SIV P2 **Date: 04/07/2023**

Subject Name: Computer Networks

Time: 11:00 am to 2:00 pm **Total Marks: 100**

Instructions:

1. **Write down each question on separate page.**
2. **Attempt all questions.**
3. **Make suitable assumptions wherever necessary.**
4. **Figures to the right indicate full marks.**

			Marks
Q.1	(a)	Differentiate between LAN, MAN and WAN.	05
	(b)	Suppose that a message 1001, 1100, 1010, 0011 is transmitted using Internet Checksum (4-bit word). What is the value of the checksum?	05
	(c)	List the Data Link Layer design issues. What is framing? List all methods used for framing and explain any two methods used for framing in detail.	07
Q.2	(a)	Explain Processing Delay, Queuing Delay, Transmission Delay, and Propagation Delay with suitable example.	05
	(b)	Draw and explain ASK and FSK Modulation scheme with appropriate waveforms.	05
	(c)	(a) Find the hamming distance between (i) d(000, 011), and (ii) d(10101, 11110) (b) Assuming even parity, find the parity bit for the following data units: (a) 1001011, (b) 1110111	07
Q.3	(a)	(a) Explain Analog signal and Digital signal. (b) Explain amplitude, frequency and phase of a signal.	08
	(b)	Give Comparison among Circuit switching, Packet switching and Message Switching.	08
Q.4	(a)	Explain OSI Layered architecture in brief.	05
	(b)	Explain error correction through Hamming code with example.	05
	(c)	Explain Go-Back-N ARQ for error control & flow control.	07
Q.5	(a)	Explain IPV4 classful addressing.	05
	(b)	Calculate the CRC codeword at the sender side for the dataword: 1001 whose devisor is 1011.	05

	(c)	Differentiate between stop-and-wait protocol for noisy channel and noiseless channel.	07
		(OR)	
	(c)	A group of N stations share a 56-kbps pure ALOHA channels. Each station outputs a 1000-bit frame on average once every 100 sec, even if the previous one has not yet been sent (e.g., the stations can buffer outgoing frames). What is the maximum value of N?	
Q.6	**(a)**	Differentiate between: (a) Pure ALOHA and Slotted ALOHA protocols. (b) 1-persistent and P-persistent CSMA	**08**
	(b)	Explain CSMA/CA in detail.	**08**
		(OR)	
	(b)	What is the length of a contention slot in CSMA/CD for (i) 2-km twin-lead cable (signal propagation speed is 82% of the signal propagation speed in vacuum) and (ii) a 40-km multimode fiber optic cable (signal propagation speed is 65% of the signal propagation speed in vacuum).	

END OF PAPER