Enrollment No.: _____

Darshan UNIVERSITY
योगः कर्मसु कौशलम्

Darshan Institute of Engineering & Technology
B.Tech. | Sem-5 | Winter-2024

Course Code	:	2101CS501	**Date**	:	17-10-2024
Course Name	:	Computer Network	**Duration**	:	150 Minutes
			Total Marks	:	70

Instructions:
1. Attempt all the questions.
2. Figures to the right indicates maximum marks.
3. Make suitable assumptions wherever necessary.

Q.1	**(A)**	Write a short note on LAN, MAN and WAN.	**4**
	(B)	Compare OSI reference model and TCP/IP protocol suite.	**3**
		OR	
		Define following terms: Computer Network, Processing Delay, Queuing Delay.	
	(C)	Sketch the diagram of OSI reference model and discuss functionalities of all the layers.	**7**
		OR	
		Define Network Topology. List all types of topologies. Discuss the concepts of all network topologies.	
Q.2	**(A)**	Write the full form of DNS. List all types of DNS Components. Explain any 2 components.	**4**
	(B)	What is the need of FTP? Discuss working of FTP.	**3**
		OR	
		Distinguish persistent and non-persistent http.	
	(C)	Discuss the DORA process in DHCP.	**7**
		OR	
		List the protocols which are used in email. Explain mail access/receiving protocols with diagram.	
Q.3	**(A)**	Draw and discuss each field of TCP header.	**4**
	(B)	Compare connection-oriented and connection less protocol.	**3**
		OR	
		What is the main reason to use sliding window protocol? Draw and discuss sliding window protocol.	
	(C)	Explain the process of connection-establishment and connection release in terms of TCP.	**7**
		OR	

Discuss the concepts of Multiplexing and demultiplexing in transport layer with appropriate diagram.

Q.4 **(A)** Draw IPV4 header format and explain the functionality of each field of IPV4 header. **4**

(B) Make a list of IP address class with its range. What are the default subnet mask of class A, B & C. Draw and explain network id and host id in class A, B & C. **3**

OR

Distinguish between IPV4 address and IPV6 address.

(C) Explain Routing Information Protocol with appropriate diagram. **7**

OR

Discuss Link state routing protocol with proper diagram.

Q.5 **(A)** Discuss the concept of variable size framing in terms of character oriented and Bit oriented with example. **4**

(B) Draw and discuss ethernet frame structure. **3**

OR

Write short note on random access collision sense protocol for collision detection and collision avoidance.

(C) A bit stream is transmitted 1101101 using the CRC method. The generator polynomial is X^4+X^2+1. What is the actual bit stream transmitted? **7**

OR

Calculate the checksum of given frame:
Frame1 - 11001100, Frame2 - 10101010, Frame3 - 11110000, Frame4 – 11000011.
Justify your answer whether data accepted or rejected at receiver side?

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