Enrollment No.: _____

Darshan UNIVERSITY

योगः कर्मसु कौशलम्

Darshan Institute of Engineering & Technology

B.Tech. | Sem-5 | Winter-2023

Course Code	:	2101CS501	**Date**	:	28-10-2023
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)** Define computer network. List various computer network applications and advantages. **4**

(B) Define topology. Explain any two topologies. **3**

OR

Indicate the delay used in network.

1. Time needed for bits to physically propagate through the transmission medium from start point of a link to the other end.
2. Time spent waiting in packet buffers for link transmission.
3. Time needed to perform an integrity check, lookup packet information in a local table and move the packet from an input link to an output link in a router.

(C) Explain OSI layer with each layer functionality. **7**

OR

Classify Transmission Media. Explain any two guided media with diagram.

Q.2 **(A)** State the port number for the following application layer protocols. **4**
A) FTP B) HTTP C) SMTP D) POP3

(B) Explain Cookie with example. **3**

OR

Illustrate why distributed design is more preferred over centralized design to implement DNS in internet?

(C) Define HTTP and explain non-persistent http connection with request-response behavior. **7**

OR

Explain SMTP with example.

Q.3 **(A)** Explain checksum with any 16-bit word example. **4**

(B) Describe working Go-Back-N protocol with example. **3**

OR

Describe working of selective repeat protocol with example.

(C) Explain stop and wait protocol with diagram. **7**

OR

Explain rdt 2.1 with proper diagram.

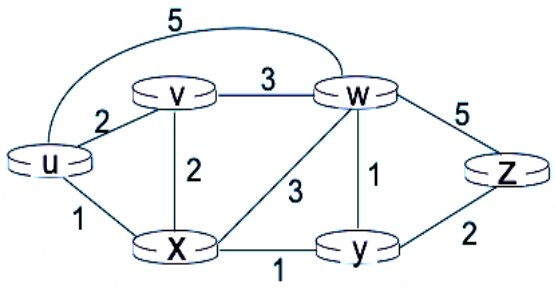
Q.4 **(A)** Compare IPv4 and IPv6. **4**

(B) Subnet the IP address 216.21.5.0 into 30 hosts in each subnet. Determine class, number of hosts in subnet, new subnet mask. **3**

OR

A block of addresses is granted to a small organization. We know that one of the addresses is 205.16.37.39/28. Determine the first address, last address, number of addresses in a block.

(C) Describe link state routing algorithm using below example. **7**



OR

Describe distant vector algorithm with example.

Q.5 **(A)** A Bit steam 100100 is to be transmitted using standard CRC method with divisor value x^3+x^2+1. Derive the CRC code word. **4**

(B) Discuss parity check for error detection in data transfer. **3**

OR

Explain CSMA/CD protocol.

(C) What do you mean by random access protocols? Explain slotted ALOHA in brief. **7**

OR

Explain example of channel partitioning protocol.

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