Reg. No.:

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TERM END EXAMINATIONS (TEE) –MAY 2022					
Programme	:	**B.Tech. – BCE**	**Semester**	:	**Winter 2021-2022**
Course Name	:	**Computer Networks**	**Course Code**	:	**CSE3006**
Faculty Name	:	**Dr. Abha Trivedi**	**Slot / Class No**	:	**A21+A22+A23/0340**
Time	:	**1½ hours**	**Max. Marks**	:	**50**

Answer ALL the Questions

Q. No.		Question Description	Marks

PART - A (30 Marks)

1 (a) List properly the major functionalities of Data link layer and Network Layer of the TCP/IP Protocol Suite. Use neat diagrams (separately for each layer) to support your answer. **10**

OR

(b) Differentiate between the following with the help of neat diagram

i. Twisted Pair Cable and Coaxial Cable **5**

ii. Circuit Switching and Packet Switching **5**

2 (a) Find the Network ID, Default Mask and Broadcast IP addresses of following Classful IP addresses **6**

a) 126.110.35.60
b) 195.30.102.3
c) 130.95.80.10

For **(b)** [195.30.102.3] create four subnets and find the Subnet ID, Subnet Mask and Broadcast IP address for each of the subnet. Show properly all the Octet that are required to be converted into binary. Also, give the range. **4**

OR

(b) Let us say routers are placed at different points (as shown in the **Figure 1** below) in your University Campus. Consider the initial routing table at Node A is as given in **Table 1** below.

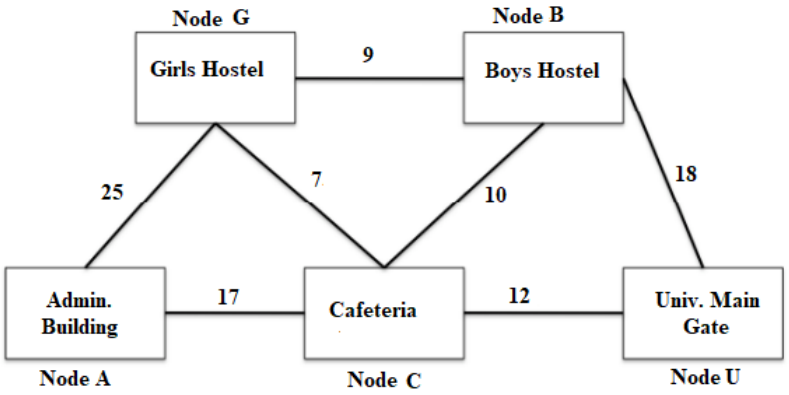


Figure 1

Execute the Distance Vector Routing Protocol algorithm to answer the following questions:

i) Show initial Routing table at Node C **3**

ii) Show initial Routing table at Node U **3**

iii) Show the Routing table at Node U after one iteration of the DVRP **4**

Destination	Cost	Next Hop
B	∞	--
C	**5**	**C**
G	**25**	**G**
U	∞	--

Table 1

3 (a) Why Transmission Control Protocol is called Connection Oriented protocol in the network system? Illustrate the three-way handshaking for connection and termination, and four-way handshaking for termination processes using a proper example case. **3 7**

OR

(b) What are the roles of HTTP, FTP, DNS and DHCP Application layer protocols in the network system? **10**

PART - B (20 Marks)

4 i) Using VLSM technique, create three subnets with 1500 hosts, 990 hosts and 600 hosts from the given IP address 240.100.30.52/20 **5**

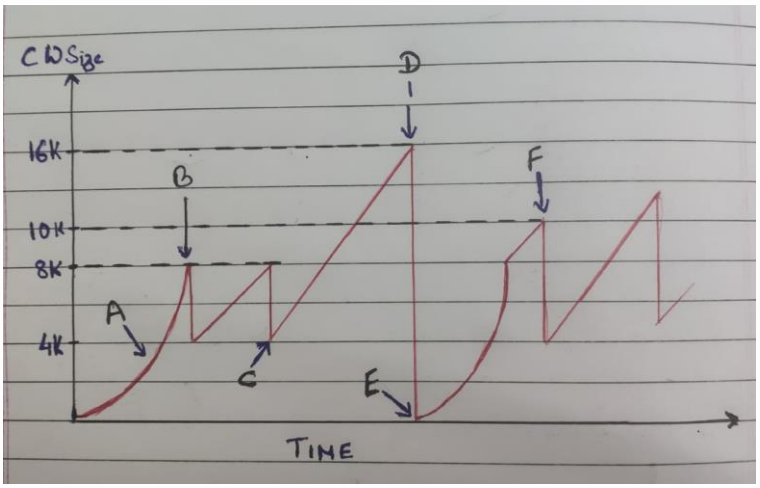
ii) A datagram of 3500B (20byte of IP header + 3480 byte IP payload) reached at router and must be forwarded to link with MTU of 500Byte. How many fragments will be generated and also write More Fragment (MF), offset, Total length value for all. **5**

5 a) Let the size of congestion window of a TCP connection in two cases: **5**

- Case 1: Timeout Occur
- Case 2: 3-Ack Received

is 64KB. The RTT of a connection is 100msec and MSS = 2KB. Compute the time(msec) taken by TCP connection to get back to 64KB Congestion Window.

b) Observe the following Figure 2 and answer the questions **5**



i) Name the event at B and D which occurred that causes the sender to decrease its window.

ii) How much time is progressed between 'C and D' & 'E and F'.

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