Roll No:.....

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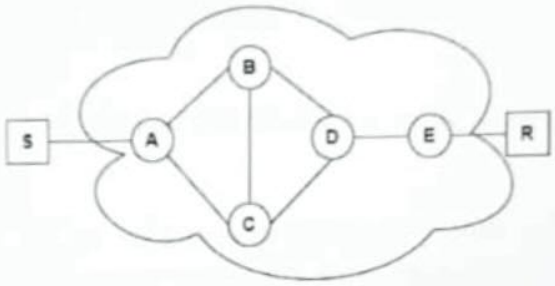
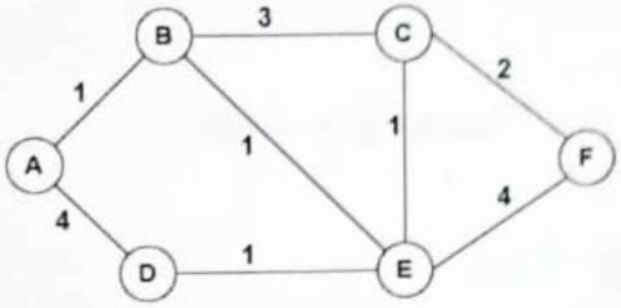
B.Tech Degree Examination May, 2023
Semester VI, EAC
19EAC311 – Computer Networks

Time: 3 hours | Maximum marks: 100

Qn No.	Questions	Total Marks	CO	Blooms taxonomy level
1	**Fill in the blanks** (a) The ... topology has the highest reliability. (b) To deliver a message to the correct application program running on a host, the ... address must be consulted. (c) The network address given by 181.56.0.0 belongs to class .... (d) The transmission time for a 1200-byte packet on a classic 10 Mbps Ethernet LAN would be approximately ...	**8**	CO1	L3
2	**Match the following to one or more layers of OSI model.** (a) Establishes, manages, and terminates sessions (b) Format and code conversion services (c) Communicates directly with user's application program (d) Route selection (e) Flow control	**5**	CO1	L2
3	Which protocol (UDP or TCP) would you prefer for a quicker transaction? Justify your choice.	**5**	CO3	L5
4	Instead of LLC, could HDLC be used as a data link control protocol for a LAN? If not, what is lacking?	**5**	CO3	L5

Qn No.	Questions	Total Marks	CO	Bloom's taxonomy level
5	For the network 192.168.100.0 with a subnet mask of 255.255.255.192, (a) Identify the number of subnets created and (b) the number of hosts per subnet.	5	CO1	L4
6	An aloha network user 19.2 kbps channel for sending message packets of 100 bits long size. Calculate the maximum throughput for (a) pure aloha and (b) slotted-aloha network.	5	CO3	L3
7	Consider building a CSMA/CD network running at 10 Gbps over a 2.5-km cable with no repeaters. The signal speed in the cable is 200,000 km/sec. Calculate the minimum frame size.	5	CO3	L4
8	For the given network, packets are transmitted from S to R using flooding.  (a) If we limit the packets by a hop count limit, which is the minimum hop count necessary for a packet from S to reach R? (b) What is the total amount of packets generated in the network for this hop count?	6	CO2	L4
9	For the following Ethernet addresses, identify if it is unicast, multicast or broadcast. (i) 4A:30:10:21:10:1A (ii) 47:20:1B:2E:08:EE (iii) FF:FF:FF:FF:FF:FF	6	CO2	L3

Qn No.	Questions	Total Marks	CO	Blooms taxonomy level
10	Briefly explain how the DNS resolution works.	**10**	CO1	L2
11	Apply Bellman Ford algorithm to find the shortest path for the following network with detailed steps. Consider A as the source node and a full duplex communication over the network.  	**10**	CO3	L3
12	(a) State and explain various frame types in HDLC protocol. (b) The HDLC frame contains the following bit sequence: 11010001 10111111 00110100 11111001 10000001 11111100 0100011. Show the bit sequence transmitted over the link after bit stuffing.(Mark the stuffed bits) (4 marks)	**10**	CO3	L3
13	Station A needs to send a message consisting of 9 packets to station B. All packets are ready and immediately available for transmission. If every 5th packet that A transmits gets lost (but no ACKs from B ever get lost), then what is the number of packets that A will transmit for sending the message to B using (i) Go Back-3 and (ii) Selective repeat protocol.	**20**	CO2	L4

L1-Remember, L2-Understand, L3-Apply, L4-Analyze, L5-Evaluate, L6-Create