CEN-605 Roll No.....21BCS

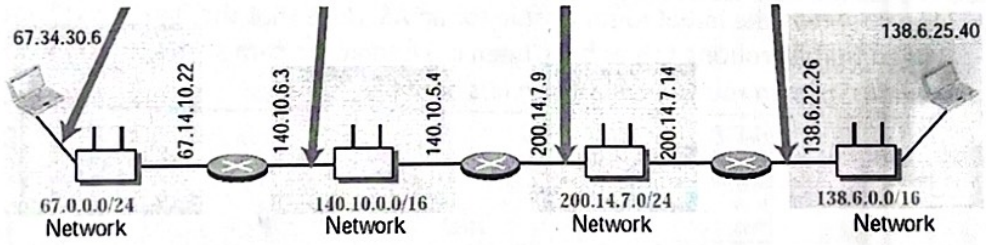
B. Tech. (Computer Engineering) 6th Semester

End Semester Examination 2024

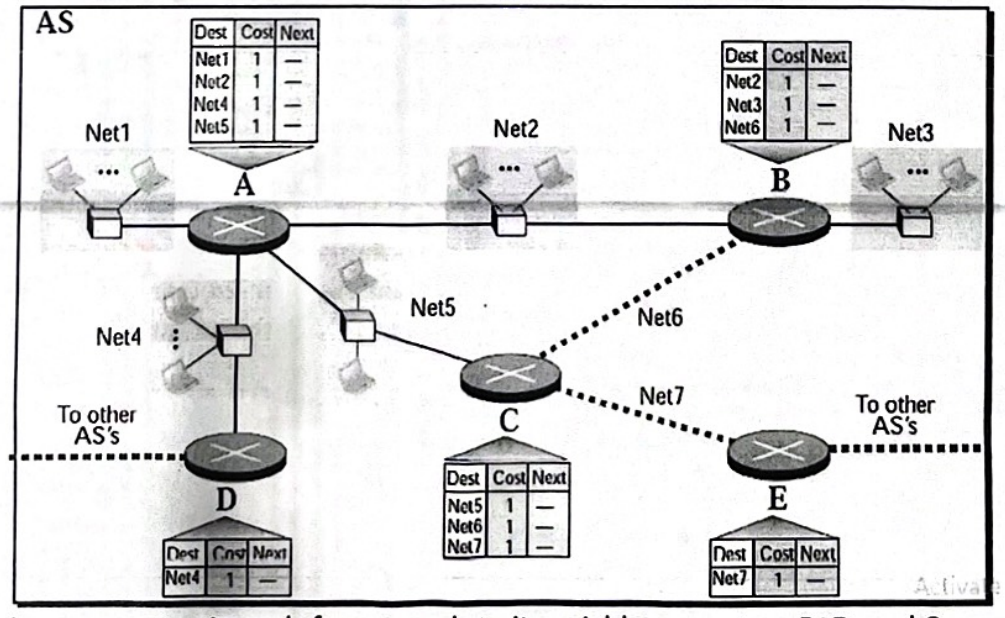
INTERNET PROTOCOLS

Time: 3 Hours **MM: 45**

Note: Attempt any two parts from each question.

Q. No	Question Statement	Max Marks
1 CO1	a) An IP datagram is carrying 5000 bytes needs to be fragmented into 5 fragments of 1000 bytes. Show the values of fragmentation offset in each fragment. Suppose the third fragment is further required to be fragmented into three fragments of 400 bytes each. Show fragments offset value with respect to original datagram.	4.5
	b) For the given network, Source Host is 67.34.30.6 and destination Host is 138.6.25.40. Fill all the entries in Strict Source route option at every router. 	4.5
	c) What is Sliding window protocol? A TCP connection is using a window size of 10,000 bytes and the previous acknowledgment number was 22,001. It receives a segment with acknowledgment number 24,001 and window size advertisement of 12,000. Draw a diagram to show the situation of the window before and after.	4.5
2 CO2	a) A router with IP address 125.45.23.12 and Ethernet physical address 23:45:AB:4F:67:CD has received a packet for a host destination with IP address 125.11.78.10 and Ethernet physical address AA:BB:A2:4F:67:CD. Show the entries in the ARP request packet sent by the router. Assume no subnetting. Show the entries in the ARP packet sent in response. Encapsulate the packet in a data link frame. Fill in all the fields.	4.5
	b) Host A sends a datagram to host B. Host B never receives the datagram and host A never receives notification of failure. Give two different explanations of	4.5

	what might have happened. What is the purpose of including the IP header and the first 8 bytes of datagram data in the error reporting ICMP messages? c) Discuss the following: i. BOOTP ii. DHCP iii. RARP	4.5
3 CO3	a) Discuss how the ICMP router solicitation message can also be used for agent solicitation. Why are there no extra fields? Which protocol is the carrier of the agent advertisement and solicitation messages?	4.5
	b) TCP opens a connection using an initial sequence number (ISN) of 14,534. The other party opens the connection with an ISN of 21,732. i. Show the three TCP segments during the connection establishment. ii. Show the contents of the segments during the data transmission if the initiator sends a segment containing the message "Hello dear customer" and the other party answers with a segment containing "Hi there seller." iii. Show the contents of the segments during the connection termination.	4.5
	c) How do we classify IPV6 addresses? Discuss and show their ranges as per their applications.	4.5
4 CO4	a) Figure shows the initial routing table for an AS. Note that the figure does not mean that all routing tables have been created at the same time; each router creates its own routing table when it is booted.	4.5



Assume router A sends four records to its neighbors, routers B, D, and C. Show the changes in routing tables of B, C and D.

	b) Discuss the different types of Link state update messages along with their packet formats.	4.5
	c) What is multicasting? Explain the procedure of joining and leaving a host to a multicast group.	4.5
5 CO5	a) A user wants to move a file named *file1* from */usr/usrs/report* directory to */usr/usrs/letters* directory. The host is called "*mcGraw.com*.". Show all the commands and responses	4.5
	b) Classify and Discuss the different types of Web Documents.	4.5
	c) User aaa@xxx.com sends a message to user bbb@yyy.com. The latter replies. Show all SMTP commands and responses.	4.5