Roll No.....

B. Tech. (Computer Engineering) VIth Semester Examination 2025

CEN-605

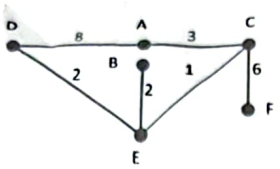
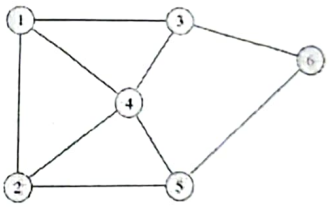
INTERNET PROTOCOLS

Time: 3 Hours **MM: 45**

Note: **Attempt any two parts from question no 2 to 5. Question no 1 has no choice.**

1. *M-Max. Marks, BL-Blooms Taxonomy Level, CO–Course Outcome.*
2. *Electronic gadgets are not allowed in the examination hall like mobile phone, smart watch etc.*
3. *Students will only be allowed to use non-programmable scientific calculator.*

Q. No	Question Statement	M	CO	BL
1.	a) Discuss the demerits of OSI Model over TCP/IP Model. Justify your answer for preferring TCP/IP over OSI.	4.5	CO1	BL1
	b) Suppose a user needs to send 1000 bytes of data over an ATM network. How many cells will be created from this data packet? Show the headers and trailers required for AAL3/4.	4.5		BL3
2.	a) A host with IP Address 130.23.43.20 and physical address B2:34:55:10:22:10 has a packet to send to another host with IP address 130.23.43.25 and physical address A4:6E:F4:59:83:AB (which is unknown to first host). The two hosts are on the same Ethernet network. Show the ARP request and reply packets encapsulated in Ethernet frames.	4.5	CO2	BL3
	b) What is the minimum length of a DHCP packet? What is the maximum length? A DHCP packet is encapsulated in an Ethernet frame. Find the efficiency of a DHCP packet when no option is used. The efficiency in this case is measured in the number of bytes in DHCP packet to the total number of bytes transmitted at the data link layer.	4.5		BL3
	c) Show with the help of a neat diagram, the process of data communication between a remote host and mobile Host. Show all the phases.	4.5		BL2
3.	a) **What is ICMP? An ICMP Message has arrived with the header as:** **05 00 11 12 11 0B 03 02** **(i)What is the type of message?** **(ii)What is the code?** **(iii)What is the purpose of message?** **(iv)What is the value of last 4 bytes?** **(v)What do the last bytes signifies?**	4.5	CO3	BL4
	b) A client uses TCP to send data to a server. The data length is 32 bytes. Calculate the efficiency of this transmission at	4.5		BL3

	i. TCP level. Assume SACK option is also used at TCP ii. IP Level, Assume Redirection option is also used at IP iii. Data link Layer.	4.5		BL1
	c) What are the different timers used at TCP? Discuss and explain.	4.5		BL4
4.	a) Consider the subnet of Fig 2. Distance vector routing is used, and the routing vectors are established for routers *A, B, C, D, E,* and *F* (as given in Table 1): and then the *C-E* link fails. Give (i) The routing tables of *A, B, C,* and E after D and F have reported the news to their neighbors. (ii) The routing tables of C and E after their next mutual exchange  Fig. 2 Table-1 Routing table at router / Cost to reach router A B C D E F A 0 6 3 6 4 9 B 6 0 3 4 2 9 C 3 3 0 3 1 6 D 6 4 3 0 2 9 E 4 2 1 2 0 7 F 9 9 6 9 7 0		CO4	
	b) Explain the flooding. Consider the network as shown in the figure, using flooding as the routing algorithm. If a packet sent by 1 to 6 has a maximum hop count of 4. List all the routes it will take. Also tell how many packets generated? Assume, no duplicate is discarded.  	4.5		BL4
	c) What is multicasting? Classify and explain the Multicasting routing protocols?	4.5		BL2
5.	a) A DNS client is looking for the IP Address corresponding to xxx.yyy.com and aaa.bbb.edu. Show the query message. Show the response message of a DNS Server to the same query if the addresses are 14.23.45.12 and 131.34.67.89.	4.5	CO5	BL4
	b) Assume there is a server with domain name www.common.com. Show a HTTP request that retrieves the document /usr/users/doc/doc1. Use atleast two general headers, two request headers, and one entity headers. Also Show the response message.	4.5		BL3
	c) What are the different Transmission modes in FTP? Classify and explain.	4.5		BL2