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10EC/TE71

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024

Computer Communication Networks

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO full questions from each part.***

PART – A

1 a. With a neat diagram of TCP/IP reference model, explain network and transport layers in detail. **(10 Marks)**

b. With a neat diagram, explain the operation of ADSL using discrete multitone modulation. **(10 Marks)**

2 a. Explain the bit stuffing and unstuffing by taking a suitable example. **(05 Marks)**

b. Explain the configuration modes of HDLC protocol with neat diagrams. **(05 Marks)**

c. Explain the stop and wait protocol with neat diagram. **(10 Marks)**

3 a. Compare pure ALOHA with slotted ALOHA. What are the reasons for poor channel utilization in ALOHA systems? How the same is approved in CSMA? **(08 Marks)**

b. Mention the different types controlled access protocols used in multiple access protocols. Explain each briefly. **(08 Marks)**

c. Prove that a receiving station can get the data sent by a specific sender if it multiplies the entire data on the channel by the sender's chip code and then divided by its number of stations. (Assume N = 4). **(04 Marks)**

4 a. With a neat diagram, explain 802.3 MAC frame format. **(08 Marks)**

b. With a neat diagram, explain Gigabit Ethernet encoding scheme. **(06 Marks)**

c. Explain two different services defined by IEEE802.11. **(06 Marks)**

PART – B

5 a. Explain each of the following in detail: i) Repeater ii) Bridge iii) Router. **(06 Marks)**

b. Explain in detail BUS Backbone and star backbone networks and how the remote LANS are connected. **(06 Marks)**

c. With appropriate diagrams explain in detail virtual LANS. What is the basis for VLAN configuration? **(08 Marks)**

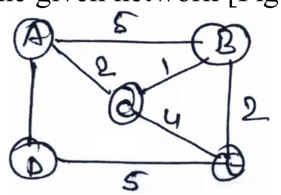
6 a. Explain the IPV4 datagram format with a neat diagram. **(10 Marks)**

b. Explain the classful addressing schemes. **(06 Marks)**

c. A block of addresses is granted to an organization. If the IP address of one of the host is 205.16.37.39/28, find the first address and last address in the block. **(04 Marks)**

7 a. Explain the Dijkstra algorithm for the given network [Fig.Q.7(a)]:

Fig.Q.7(a)



(10 Marks)

b. Explain the different techniques used to forward packet from source to destinations. **(10 Marks)**

8 a. With a neat diagram, explain the TCP segment format. **(10 Marks)**

b. What is resolver? Explain different address resolution methods. **(10 Marks)**

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.