CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐ **15EC64**

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024
Computer Communication Networks

Time: 3 hrs. Max. Marks: 80

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. Explain the significance of layers in TCP/IP protocol suite with neat diagram. **(08 Marks)**
   b. Illustrate with an example byte stuffing and bit stuffing. **(04 Marks)**
   c. Explain briefly four physical topologies of a network. **(04 Marks)**

OR

2 a. Explain ARP operation and ARP packet format with a neat diagram. **(08 Marks)**
   b. Describe the operation of STOP and WAIT protocol also FSM for STOP and WAIT protocol. **(08 Marks)**

Module-2

3 a. A ALOHA network transmits 200 bit frame using a shared channel with a 200 kbps band width. Find the through put of pure and slotted ALOHA if the system produces 500 frame per second. **(06 Marks)**
   b. Describe the frame format of IEEE 802.3 Ethernet. What are minimum and maximum length of frame? **(07 Marks)**
   c. Identify unicast, multicast and broad cast from the following MAC addresses:
   4A : 30 : 10 : 21 : 10 : 1A
   47 : 20 : 1B : 2E : 08 : EE
   FF : FF : FF : FF : FF : FF. **(03 Marks)**

OR

4 a. A network using CSMA/CD has a band width of 10 Mbps. If the maximum propagation time is $25.6\mu s$. What is the minimum size of the frame? **(05 Marks)**
   b. Explain polling technique with suitable illustration. **(06 Marks)**
   c. In the standard Ethernet with the transmission rate of 10 Mbps, length of cable is 2500mt and frame size is 512 bits. The propagation speed of a signal in a cable is 2×10^8m/s. Find efficiency of standard Ethernet. **(05 Marks)**

Module-3

5 a. With a neat diagram, explain two types of networks defined in Bluetooth. **(04 Marks)**
   b. What is hidden station problem in wireless LAN's? Give solution for it. **(06 Marks)**
   c. Describe VLAN. How is it used in grouping of stations? **(06 Marks)**

OR

6 a. Explain the occupation of the address space in classful addressing. **(04 Marks)**
   b. A block of addresses is granted to a small organization. We know that one of the addresses is 167·199·170·82/27. What is the first address, last address and total number of address of the block? **(06 Marks)**
   c. With a neat diagram, explain how can a NAT help in address translation. **(06 Marks)**

Module-4

7 a. Explain IPV4 Datagram format. **(08 Marks)**
   b. Explain with an example distance vector routing algorithm. **(08 Marks)**

OR

8 a. Explain with a neat diagram the three phases in Mobile host communication. **(08 Marks)**
   b. Explain with an example link state routing and also apply Dijksthra algorithm to find least cost path tree. **(08 Marks)**

Module-5

9 a. Explain connection less and connection oriented service showing the movement of packets using time line. **(08 Marks)**
   b. Explain why the size of the send window in Go back N must be less than 2^m? **(08 Marks)**

OR

10 a. Explain TCP connection establishment and connection termination using three way hand shaking. **(10 Marks)**
   b. Describe slow start algorithm for handling congestion in TCP. **(06 Marks)**

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