CBCS SCHEME

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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 25.6μs. 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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