

CBCS SCHEME

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15EC64

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019 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. Show the encapsulation and decapsulation representation in the TCP/IP model and explain. (06 Marks)
- b. Define framing, explain role of bit stuffing in a framing. (04 Marks)
- c. Mention the different network topology. List out advantages and disadvantages of each topology. (06 Marks)

OR

- 2 a. What are five components involved in data communication? Explain with a suitable diagram. (05 Marks)
- b. Demonstrate stop and wait protocol by considering acknowledgement, timer and sequence no with the help of flow diagram. (06 Marks)
- c. Describe link layer addressing with suitable illustration. (05 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 2500 mt and frame size is 512 bits. The propagation speed of a signal in a cable is 2×10^8 m/s. Find efficiency of standard Ethernet. (05 Marks)

Module-3

- 5 a. Explain the following connecting devices: i) Hub ii) Link layer switch iii) Router. (06 Marks)
- b. Define two types of Bluetooth networks. (06 Marks)
- c. Differentiate between data gram network and virtual circuit network. (04 Marks)

OR

- 6 a. Define IEEE 802.11 addressing mechanism for four cases. (06 Marks)
 b. Give a note on virtual LAN. (05 Marks)
 c. An organization is granted a block of address with the beginning addresses 14.24.74.0/24. The organization need to have 3 sub blocks of addresses to use in its three subnets: one sub block of 10 addresses, one sub block of 60 addresses, and one sub block of 120 addresses. Design the sub blocks. (05 Marks)

Module-4

- 7 a. Give a brief overview of IPV4 datagram. (10 Marks)
 b. Find the shortest path from source 'A' to destination 'G' from given graph as shown in the Fig.Q.7(b) using the Dijkstra algorithm. (06 Marks)

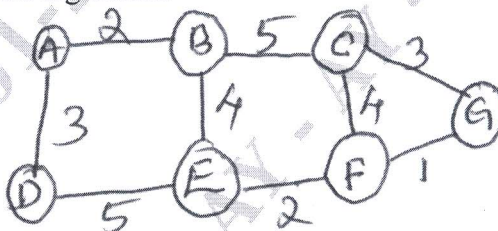


Fig.Q.7(b)

OR

- 8 a. Explain three phases of communication between a remote host and mobile host. (08 Marks)
 b. Explain distance-vector-routing using a Bellman Ford algorithm providing a suitable illustration. (08 Marks)

Module-5

- 9 a. Describe connectionless and connection – oriented services provided by the transport layer. (08 Marks)
 b. Discuss TCP segment. (08 Marks)

OR

- 10 a. Demonstrate Go-back-n protocol with a forward channel is reliable but in the reverse channel, if an acknowledgment is delayed or lost. (06 Marks)
 b. Explain a TCP connection establishment using three way hand shaking. (10 Marks)
