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 25.6μs. 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 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)**

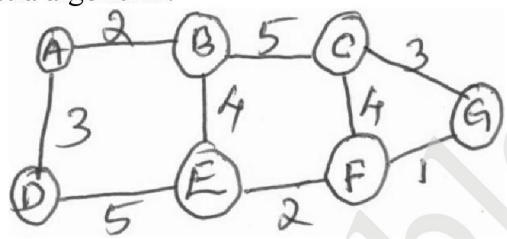

Fig.Q.7(b)

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)**