Sixth Semester B.E. Degree Examination, Aug./Sept. 2020
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. Outline the functions of various layers in TCP/IP with necessary diagram to show logical connection between layers. **(08 Marks)**

b. Explain the various services of datalink layer. **(08 Marks)**

OR

2 a. Explain stop and wait protocol. Also explain with necessary diagrams how sequence and acknowledge numbers prevent duplication of frames. **(10 Marks)**

b. Compare various physical topologies in a computer network. **(06 Marks)**

Module-2

3 a. List the controlled access methods. Also explain reservation access method. **(06 Marks)**

b. Summarize standard Ethernet implementations. **(04 Marks)**

c. A pure ALOHA network transmits 200 bit frames on a shared channel of 200 kbps. What is the throughput if the system produces :
   i) 1000 frames per second
   ii) 500 frames per second
   iii) 250 frames per second. **(06 Marks)**

OR

4 a. Explain CSMA/CA protocol with a flow diagram. **(08 Marks)**

b. Explain Ethernet frame. **(04 Marks)**

c. A network using CSMA/CD has a bandwidth of 10Mbps. If the maximum propagation time is 25.6μs, what is the minimum size of the frame? **(04 Marks)**

Module-3

5 a. Compare two types of Bluetooth networks and also explain various layers of Bluetooth. **(08 Marks)**

b. Explain in brief DHCP. **(04 Marks)**

c. An organization is granted a block of addresses with the beginning address 14·24·74·0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets : one subblock of 10 addresses, one subblock of 60 addresses and one subblock of 120 addresses. Design the subblock. **(04 Marks)**

OR

6 a. Explain in brief various categories of connecting devices. **(06 Marks)**

b. Explain the following :
   i) QoS
   ii) Congestion control. **(04 Marks)**

c. Explain with a neat diagram virtual circuit packet switched network. **(06 Marks)**

Module-4

7 a. Explain with a neat diagram IP datagram format. **(08 Marks)**

b. Illustrate with an example, Linkstate routing. **(08 Marks)**

OR

8 a. What is distance vector routing? Explain the various drawbacks of distance vector routing and a few solutions to overcome the same. **(08 Marks)**

b. Explain with a diagram three phases of mobile IP. **(08 Marks)**

Module-5

9 a. Explain with a neat diagram, Goback-n protocol. **(08 Marks)**

b. Explain TCP segment format. **(08 Marks)**

OR

10 a. Explain various services of UDP. **(05 Marks)**

b. Compare connection oriented and connectionless services. **(08 Marks)**

c. Suppose a TCP connection is transferring a file of 5000 bytes. The first byte is numbered 10001. What are the sequence numbers for each segment if data are sent in five segments, each carrying 1000 bytes? **(03 Marks)**