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06EC71

Seventh Semester B.E. Degree Examination, December 2011
Computer Communication Networks

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Explain the differences between OSI reference model and TCP /IP reference model. **(05 Marks)**

b. Match the following to one or more layers in OSI model :
i) Route determination
ii) Flow control
iii) Interface to transmission media
iv) Provides access for the end user
v) Format and code conversion services. **(05 Marks)**

c. What is DSL technology? What are the services provided by the telephone companies using DSL? Distinguish between DSL and DSLAM. **(10 Marks)**

2 a. In stop and wait ARQ system, the bandwidth of the line is 1Mbps and it takes 20 ms to make round trip. What is the bandwidth delay product? If the system data frames are of 1000 bit length, what is the utilization percentage of link? What is the channel utilization percentage of link if the protocol that can send up to 15 k rnes before stopping and worrying about the acknowledgement? Write the comment. **(05 Marks)**

b. Explain briefly the bit and charter stuffing. **(05 Marks)**

c. With a neat diagram, explain the HDLC frame form. **(10 Marks)**

3 a. Write the different physical topologies used in the logical ring method and explain briefly. **(10 Marks)**

b. In CSMA/ CD, the data rate is 10 Mbps, the distance between the stations 'A' and 'C' is 2000 m and propagation is 2×10^8 mts. Station A starts sending a long frame at time $t_1 = 0$; station C starts sending a long frame at t_2 =3 micro sec. The size of the frame is long enough to guarantee the detection of collision by the stations.
Find :
i) The time when station 'C' hears the collision (t_3)
ii) The time when station 'A' hears the collision (t_4)
iii) The number of bits station A has sent before detecting the collision
iv) The number of bits station C has sent before detecting the collision. **(10 Marks)**

4 a. Mention the four different types of Ethernet format. Explain the same briefly. **(10 Marks)**

b. List the different goals of giga bit Ethernet and explain the different implementation of same. **(10 Marks)**

PART – B

5 a. Why spanning tree algorithm is used? Explain the same, with a graphical representation. **(10 Marks)**

b. Mention the different characteristics of VLAN and explain briefly. **(10 Marks)**

6 a. Find the range of address in the following blocks
   i) 123.56.77.32/29
   ii) 200.17.21.128/27
   iii) 17.34.16.0/23
   iv) 180.34.64.64/30. **(10 Marks)**

   b. Explain the IPV4 datagram format. **(10 Marks)**

7 a. Explain the Dijkstra algorithm for the example shown in Fig. Q7(a). **(10 Marks)**

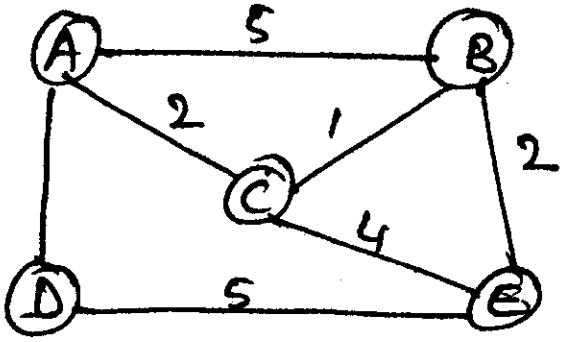

Fig. Q7(a)

   b. Explain the different forwarding techniques used to forward the packet from source to destination. **(10 Marks)**

8 a. Explain the user datagram format. **(05 Marks)**

   b. Explain the features of TCP. **(10 Marks)**

   c. Suppose a TCP connection is transferring a file of 5000 byes, the 1st byte is numbered 10,001. What are the sequence nos of each segment, if data are sent in 5 segments each carrying 1000 bytes? **(05 Marks)**

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