REFNO018126

B.Sc. (Hons.) VI Semester / MCA II Semester Examination 2018-19

Computer Science/Computer Application

Paper: CS-204

(Computer Networks)

Time: Three hours] [**Full Marks**: 70

Note: Answer any **five** questions, including question no. 1, which is compulsory.

1. Answer any ***seven***. (2x7=14)
   - **a.** Draw the graph of the Differential Manchester encoding scheme using the following data stream 10010101.
   - **b.** List the names of two approaches of packet switching. What is the basic difference between them?
   - **c.** Name the advantages of optical fiber cable over twisted-pair cable.
   - **d.** What is the difference between OSI model and TCP/IP model?
   - **e.** What is the purpose of inverse domain in DNS?
   - **f.** Why is an ARP query sent within a broadcast frame?
   - **g.** Compare the data rates of Standard Ethernet, Fast Ethernet and Gigabit Ethernet.
   - **h.** How is HTTP related to WWW?

2.
   - **a.** What is the difference between random access method and controlled access method? (2)
   - **b.** Define channelization and list three protocols in this category. Explain CDMA with suitable example. (6)
   - **c.** Referring to the CRC-8 polynomial x8+x2+x+1, answer the following questions: (6)
     - **i.** Does it detect a single bit error? Defend your answer.
     - **ii.** Does it detect a burst error of size 6? Defend your answer.
     - **iii.** What is the probability of detecting a burst error of size 9?
     - **iv.** What is the probability of detecting a burst error of size 15?

3.
   - **a.** What is the difference between a unicast, multicast, and broadcast MAC address? If an Ethernet destination address is 05:01:02:03:04:05, what is the type of address (unicast, multicast or broadcast)? (5)

P.T.O.

b. What is the difference between open loop congestion control and closed loop congestion control? List the techniques in each category. (3)

c. Explain the difference between transmission delay and propagation delay. If node 'A' sends a 500 byte packet to node 'B'. Find the transmission delay and propagation delay between the nodes A and B?(Assume data travels through the link at the speed of light) (6)

4.

a. What is the purpose of following fields in TCP segment header? (6)

(i) Urgent pointer

(ii) Six 1-bit flags

(iii) Window size

b. What is the difference between full close and half close of a TCP connection? Explain the actual situations when they are needed. (5)

c. How is the flow control at the transport layer different from flow control at the data link layer? (3)

5.

a. What do you mean by physical to logical address mapping? In what situations they are needed? How DHCP is better than BOOTP? (5)

b. Define fragmentation and explain why the IPv4 protocol needs to fragment some packets? (4)

c. In a block of classless address, we know the IP address of one host is 182.44.82.16/26. What will be the block size, first address and last address in this block? (3)

d. What is the meaning of **C (5 , 2) d_{min}=3** notation? (2)

6.

a. Explain the concept of Link State Routing Algorithm with suitable example. (6)

b. Explain the steps of analog to digital encoding mechanism with appropriate block diagram. (6)

c. What is the purpose of TTL field in IP datagram? (2)

—o—