Total number of printed pages – 4

B. Tech

BCSE 3306

Sixth / Eighth Semester Examination – 2008

COMPUTER NETWORKS

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10

   (a) Suppose the size of an uncompressed text message is 1 megabytes. How long does it take to download the file over a 32 kilobits/sec modem ?

   (b) What is the difference between simplex and half duplex transmission mode ?

(c) Explain the difference between character stuffing and bit stuffing.

(d) State how connection less protocol differs from connection oriented protocol.

(e) Explain the meaning of the term protocol converter.

(f) Why does IPv6 allow fragmentation at the source only.

(g) Perform bit stuffing for the following sequence : 1101 1111 1101 1111 10101

(h) Explain the difference between connectionless unacknowledged service and connectionless acknowledged service.

(i) Define Nyquist signaling rate.

(j) How many errors in a message can be corrected using LRC ?

2. (a) What is the function of a null modem ? Show the internal connections used within a null modem and explain the significance of each connection. 5

(b) Explain how clock synchronization can be achieved using :

(i) Bipolar encoding

(ii) Differential Manchester encoding. 5

3. (a) With the help of frame sequence diagram, explain how the following frames are handled in a Go-Back-N ARQ protocol :

(i) A corrupted I-frame and

(ii) A corrupted ACK-frame. 5

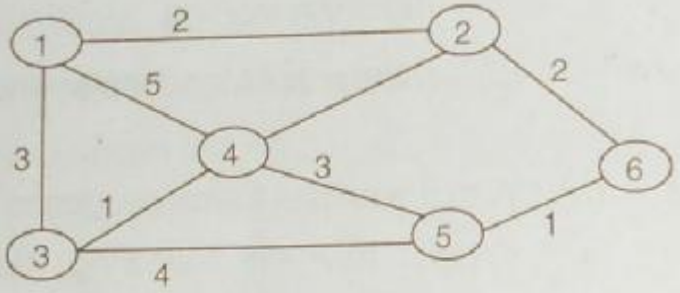
(b) Explain the principle of operation of CSMA/CD MAC used in LAN. 5

4. (a) Describe the structure of IP datagram and explain the function of each field in the context of the IP protocol. 5

(b) List the message types associated with the Internet control message protocol (ICMP) and explain the various functions associated with the protocol. 5

5. (a) Sketch the header of a TCP segment. Explain the function of each field. 5

(b) Use Dijkstra algorithm to find the set of shortest path from node 4 to other nodes. 5



6. (a) Computer the CRC-4 character for the following message using a "divisor" constant of 10011. 5

(b) The original three network types were LAN, MAN and WAN. Describe how they differs from one another. 5

7. (a) What is the drawback of PSK versus FSK modulation. 5

(b). How does frame relay differs from ATM. 5

8. Write short notes on any *two* : 5×2

(a) Guided media

(b) Bluetooth

(c) Cryptography.