

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 ?

P.T.O.

- (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

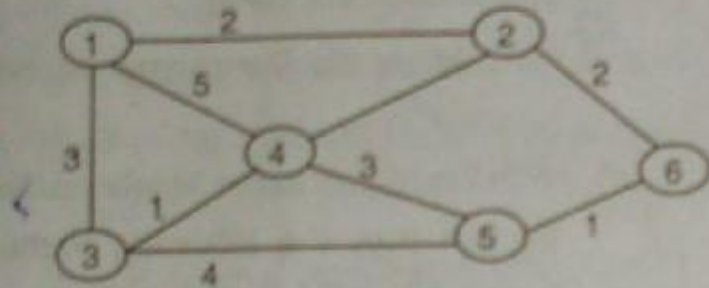
4. (a) Describe the structure of IP datagram and explain the function of each field in the context of the IP protocol. 5

- (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) Compute 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.