

**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 x10
- (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

**P.T.O.**

**BCSE 3306**

**2**

**Contd.**

(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

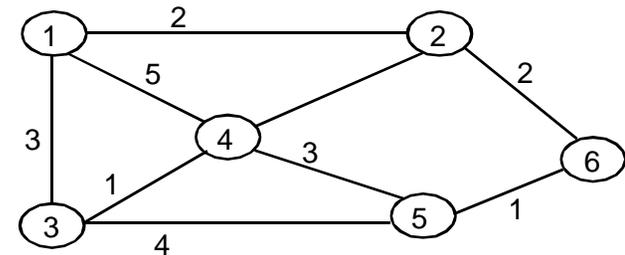
4. (a) Describe the structure of IP datagram and explain the function of each field in the context of the IP protocol. 5

(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.

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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.

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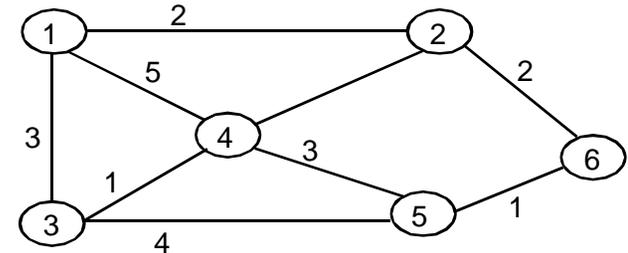
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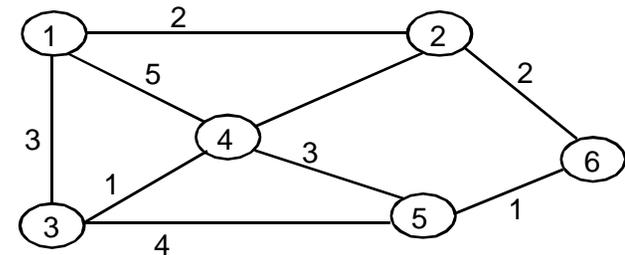
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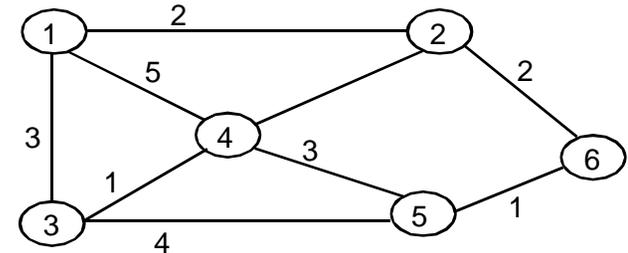
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