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MCA
PCS 5009

Fifth 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) What will be the channel capacity of a telephone channel with Bandwidth of 3.4 KHz and SNR = 10,000 ?
- (b) What is the maximum distance 'd' between two terrestrial microwave dishes ?

P.T.O.

- (c) What do you mean by bit-oriented protocol?
- (d) What is plaintext and ciphertext ?
- (e) Name any two network layer protocols.
- (f) Explain the function of transport layer.
- (g) Explain the meaning of subnet relating to internetworking.
- (h) What is the protocol used for connecting wireless LANs ?
- (i) List the multiplexing techniques used in computer networks.
- (j) Deduce the number of extra bits required to transmit a message comprising one hundred 8-bit characters over a data link using Asynchronous transmission with one start bit and two stop bits per character and a single start-of-frame and end-of-frame character per message.

- 2. Use example waveform sets to illustrate the main features associated with following encoding schemes :
AMI, B8ZS, HDB3, Manchester
Comment on relative advantages of each scheme. 10
- 3. Generate the CRC code for the message 11100110 using the generator polynomial 11001. Show how it helps in error detection. 10
- 4. With the aid of frame sequence diagram and assuming a go-back-N error control scheme, describe how the following are overcome : 10
 - (a) A corrupted Information frame
 - (b) A corrupted ACK frame.
- 5. List the types of network topology used for LANs and with the aid of sketches, explain their operation. 10

6. Describe the differences between a circuit switched data network and packet switched data network. Clearly identify the effects on the users of these networks. 10
7. List the message types associated with ICMP and hence explain the various functions associated with the protocol. 10
8. Explain the aim of the ISO reference model for open systems interconnection and outline the functions of each layer. 10