Sixth Semester Examination -2007
COMPUTER NETWORKS
FULL MARKS-70
Time : 3 Hours

Answer question No. 1 which is compulsory and any five questions from the remaining questions.

The figures in the right hand margin indicate full marks for the questions.

1. Answer the following questions : 2×10

   (a) How long does it take to transmit x KB over y-Mbps link ? Give your answer as a ratio of x and y.

   (b) What is the difference between broadcast and multicast ?

   (c) How does a LAN differ from WAN ?

   (d) What advantages a multipoint connection have over point - to- point connection ?

   (e) Explain the meaning of peer-to-peer process.

   (f) How does a analog signal differs from the digital signal ?

   (g) Distinguish between bit rate and baud rate.

   (h) What is the sampling rate of PCM if the frequency ranges from 1000 to 4000 Hz ?

   (i) Give one example each of guided and unguided media.

   (j) What are the two types of TDM ?

2.   (a)   Show the **NRZ** and **NRZI** encoding for the bit pattern given below :   (5

              1001 1111 0001 0001

  (b)   Supppose we want to transmit the message 1011 0010 0100 1011 and protect it from errors using the CRC-8 polynomial

         $X^8 + X^2 + X^1 + 1$ .What is result of the receiver CRC calculation if the leftmost bit of the message is inverted due to the noise on the transmissiom link ? How does the receiver knows that a error has occurred ?   (5

3.   (a)   Explain the mechanism of stop-and-wait ARQ(5

  (b)   Differentiate between token ring and token bus(5

4.   (a)   Explain how a message exchange takes place between to machine A and B using TCP connection.   (5

  (b)   Encrypt the message m=7 using RSA encryption with the following parameters p=13, q=7, and e=5   (5

5.   (a)   How do the layer of TCP / IP protocol suite correlate to the layers of the OSI model ?   (5

  (b)   A periodic signal is decomposed into five sine waves with frequencies of 100 , 300, 500, 700, and 900 Hz.What is the band-width of the signal ?Draw the spectrum assuming all components have a maximum amplitude of 10 volts.   (5

6.   (a)   What are the functions of DTE and DCE ?   (5

  (b)   List different methods used to convert digital signal to an analog signal and explain any one of them.   (5

7.   (a)   Differentiate between circuit switching and packet switching.   (5

  (b)   Explain how space division switch differs from time division switch.   (5