Total number of printed pages – 4

MCA

PCS 5009

Fifth Semester Examination – 2006

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

   (i) What is the purpose of a null modem.

   (ii) List at least three main function of a data link layer.

P.T.O.

(iii) How a lost frame is different from a damaged frame ?

(iv) Give two example of analog information.

(v) List the three modes of transmission.

(vi) Distinguish between LAN and WAN.

(vii) How does a signal differs from information ?

(viii) How a single bit error differs from that of burst error ?

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

(x) What are the two types of TDM ?

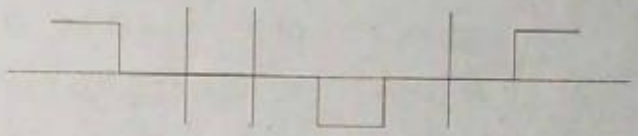
2. (a) Explain how an analog signal is converted into digital signal. 5

(b) Explain the need of ARP and RARP. 5

3. (a) Illustrate how a NRZ-L differs from NRZ-I. 5

(b) Assume a data stream is made of ten 1's. Encode this stream using (i) Manchester and (ii) Differential Manchester encoding. How many changes you find for each scheme ? 5

4. (a) The following figure shows a data stream encoded using AMI encoding. Find out the encoded data stream. 5



(b) Explain the principle of operation of IEEE 802.11 protocol . 5

5. (a) Why is it not necessary to have negative acknowledgement 0 (NAK0) and negative acknowledgement 1 (NAK1) in Stop-and-Wait ARQ ? 5

(b) Suppose that the ALOHA protocol is used to share a 56 Kbps satellite channel. Suppose that frames are 1000 bits long. Find the maximum throughput of the system in frames/second. 5

6. (a) Explain the mechanism of Go-Back-N ARQ. 5

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

7. (a) Describe the principle of operation of DQDB MAC protocol. 5

(b) Which of the following two protocols have higher throughput – ALOHA, SLOTTED ALOHA ? Explain why and find an equation for the throughput of the protocol. 5

8. (a) Explain the principle of operation of frame relay. Show how it differs from X.25 protocol. 5

(b) Explain how message exchange takes place between public key cryptographic systems. 5