May - 09

Roll No. .....

Subject Code—2059

M.C.S. EXAMINATION

(Fourth Semester)

MC-16

COMPUTER NETWORKS

Time : 3 *Hours* *Maximum Marks* : 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Sketch the model of a data communication system and describe the function of each component involved in data communication.

2. Distinguish between the following using diagrams :
   (a) Half duplex and Full duplex transmission
   (b) Bit rate and Baud rate
   (c) Manchester and Differential Manchester Encoding.

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3. (a) What is the theoretical maximum bit rate for a noiseless channel according to Nyquist ? What is it for a noisy channel according to Shannon ? Calculate the capacity of a noiseless channel if the channel bandwidth is 3000 Hz and transmitting a signal with 4 signal levels.

   (b) How does multiplexing affect data communication ? Discuss the types of multiplexing used in data communication.

4. What is Digital Transmission ? Why is digital to analog conversion required ? Explain the techniques/encoding for digital to analog conversion.

5. Sketch the layers of OSI reference model and list the functions of each layer.

6. (a) Sketch a suitable topology for a Local Area Network and describe how client-server architecture fits in the topology.

   (b) What are the advantages of packet switching over circuit switching in data communication ?

7. Describe the purpose of the following :
   (a) Token in IEEE 802·4 Token bus
   (b) Monitor station in IEEE 802·5 Token Ring
   (c) Pad field in the frame format of IEEE 802·3 Ethernet.

8. (a) How are reservations made for transmission in DQDB MAN standard ?
   (b) Is HDLC a bit oriented or byte oriented protocol ? Describe the common transfer modes provided by HDLC.