Roll No. .....

# Subject Code—6769

## M. Sc. EXAMINATION

(Fourth Semester)

(MCA 3 Years)

(Main & Re-appear Batch 2009)

COMPUTER SCIENCE

MS-16

Computer Networks

*Time :* 3 *Hours* *Maximum Marks :* 70

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

1. What are the components of a data communication system ? How will you make a distinction between analog and digital data ? How is digital data transmitted over an analog carrier ?

2. (a) Sketch the Manchester and Differential Manchester encoding for the bit stream 1001110101. Which of the IEEE LAN standards use Manchester encoding and which one uses differential Manchester encoding.

(b) How are the terms frequency, bit rate, baud, bandwidth and capacity of a channel related ? How is the maximum capacity of a channel identified according to Nyquist ?

3. (a) How does data transmission take place through optical fibers ?

(b) What is meant by virtual circuit as supported by ATM ?

4. (a) Explain how errors can be detected in data transmission.

(b) What do you mean by character oriented and bit oriented protocols ? Discuss one protocol of each type.

5. Sketch the topologies used in various IEEE LAN standards. Explain the media access control mechanism used in each of these LAN standards. How are reservations made for a token in Token Ring LAN ?

6. What is the significance of multiplexing and switching in data communication ? Give an overview of different multiplexing and switching techniques.

7. Describe the function of each of the layers of OSI reference model. What kind of network supports MAC sublayer ? Which layers of OSI model exist in TCP/IP model ?

8. (a) What is the purpose of distributed queues in DQDB MAN standard ?

   (b) Describe one routing strategy that is dynamic and distributed in nature.