

#### Unit IV

8. How are routing decisions made using Link State routing algorithm ? What is the need of sequence numbers and age field in link state packets ?
9. Explain one algorithm for controlling congestions based on closed loop policies and any *two* techniques for providing Quality of Service to a flow.

Roll No. ....

Total Pages : 04

**MCAE/D-23**

**24023**

DATA COMMUNICATION AND COMPUTER  
NETWORKS  
MCA-20-14

Time : Three Hours]

[Maximum Marks : 75

**Note :** Attempt *Five* questions in all. Question No. **1** is compulsory. In addition to compulsory question, attempt *four* more questions, selecting *one* question from each Unit. All questions carry equal marks.

**((Compulsory Question))**

1. Answer any five of the following questions in brief :
  - (i) Depict diagrammatically a networks consisting of wired and wireless LANs having access to the Internet.
  - (ii) Name one wireless MAN standard and illustrate its operational infrastructure through a sketch.
  - (iii) How is broadband transmission achieved using ADSL ?
  - (iv) How is data transmitted using optical fibers ?

- (v) What kind of multiplexing is used in GSM ?
- (vi) What is 4B/5B encoding and where is it used ?
- (vii) What will be the IPv4 address class for the IP address 10000000.00001011.00000011.00011111.

### Unit I

2. Give an overview of LANs with a focus on the following aspects. Also give examples of any two LAN standards commonly in use nowadays.
  - (a) Characteristics
  - (b) Components and connectors
  - (c) Design issues
  - (d) Topologies.
3. Answer the following questions in brief :
  - (a) List the functions of application and presentation layers of OSI reference model.
  - (b) What is the difference between connection oriented and connectionless services ?
  - (c) Name the protocols of Transport layer and Internet layer of the TCP/IP model and mention their purpose.

### Unit II

4. Give answers to the following questions in brief :
  - (a) What kind of transmission impairments can exist in data communication ?
  - (b) Give four points of distinction between circuit switching and packet switching.
  - (c) What techniques of modulations are used in Modems ?
5. Distinguish between the following with diagrams wherever applicable :
  - (a) NRZ, Manchester, and Differential Manchester encoding
  - (b) FHSS and DSSS.

### Unit III

6. How are errors detected in data transmission using CRC and checksum methods ? Also describe, how can flow and error be controlled using selective repeat sliding window protocol.
7. Describe the access control, encoding and frame format of Ethernet and Token ring LANs. Also describe the purpose of binary exponential back-off algorithm in Ethernet LAN.