

**MCAE/D-21****24023****DATA COMMUNICATION AND  
COMPUTER NETWORKS****Paper–MCA-20-14**

Time Allowed : 3 Hours]

[Maximum Marks : 75

**Note** : Attempt **five** questions in all, selecting **one** question from each Unit.  
Question No. **1** is compulsory. All questions carry equal marks.

**Compulsory Question**

1. Answer any **five** of the following questions in brief :
  - (i) Sketch a conceptual view of the Internet Infrastructure.
  - (ii) Distinguish between Asynchronous and Synchronous transmission.
  - (iii) What will be the maximum data rate of a 4 KHz channel with 6 bits per baud as per Nyquist.
  - (iv) Describe one byte-oriented technique for Framing.
  - (v) Illustrate one collision free Protocol for Media access.
  - (vi) Distinguish between Leaky Bucket and Token Bucket techniques for Congestion control.

**UNIT-I**

2. Bring out a distinction between LANs, MANs and WANs w.r.t. the design issues and transmission technologies.
3. Describe the Network architecture of OSI reference model and compare it with TCP/IP architecture.

**UNIT-II**

4. Distinguish between the following :
  - (a) Link-Layer Switches, Bridges and Routers.
  - (b) Multiplexing and Spread Spectrum.
5. Give an overview of various Data encoding and Modulation techniques with illustrative diagrams.

### UNIT-III

6. Answer the following questions in brief :
  - (a) How is flow controlled using selective repeat sliding Window Protocol?
  - (b) How are errors detected using Checksum method ?
  - (c) How is Media access controlled using Aloha ?
7. Bring out a Comparison between the following :
  - (a) IEEE 802.11 and Wi-Max.
  - (b) GSM and CDMA.

### UNIT-IV

8. Distinguish between the following :
  - (a) TCP and UDP
  - (b) IPv4 and IPv6.
9. Describe the strategies followed in Distance vector and Link state routing. Which one is considered to be more efficient ?

