MCA/D-16
COMPUTER NETWORKS AND DATA COMMUNICATION
PAPER : MCA-14-32

Time Allowed: 3 Hours Maximum Marks: 80

Note: Attempt five questions in all. Question No. 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. Short type questions
   (a) What are the functions of network layer?
   (b) Describe various ATM adaptation layers and their need.
   (c) Discuss in detail about the design issues in data link layer.
   (d) Explain in detail about X.25.

Unit-I

2. (a) Explain the model, architecture, service primitive and parameters of OSI and also differentiate between OSI model and TCP/IP Reference model.

   (b) Explain the term Frame Relay in detail.

3. Explain the hardware building block for Computer Networks and discuss various nrtwork topologies with their merits and demerits.

Unit-II

4. (a) Discuss in detail about packet switching and principles and techniques.

   (b) Explain the term TDM and FDM and SONET.

5. Discuss in detail about the following terms in details.
   (a) Optical fiber
   (b) Coaxial cable
   (c) Broadcast Radio
   (d) Transmission impairment
   (e) Differentiate between Asynchronous and Synchronous Transmission.

Unit-III

6. Explain in detail the stop-and-wait, Go-Back-N and selective repeat ARQ protocols in DLL.

7. (a) Discuss between flow control and error control in DLL.

   (b) Discuss the concepts of Redundancy in error detection and correction.

   (c) Explain the CSMA protocol techniques in detail.

Unit-IV

8. Discuss about any two routing technique in detail. And also explain the shortest path routing technique in detail with suitable example and also explain the Count-to-infinity problem in DSR and also explain the solution to it.

9. (a) Explain the general principles of congestion control. What are the different congestion avoidance mechanisms?

   (b) Explain the term Pocket scheduling.