Con. 5850-09. B.E. (Comp) Sem VII (R) SP-6582

Advanced Computer Networks

(3 Hours) [Total Marks : 100

(216) 31/12/09

N.B. : (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** questions out of remaining **six** questions. 10.30 to 1.30
(3) Assume **suitable** data wherever **required** but justify the **same**.

1. The ***A.B.C. Pvt. Ltd.*** has a main branch at Mumbai and 3 divisional branches at Kolkata, Delhi and Chennai respectively. Each branch has a set of servers e.g. web server, mail server etc. along with 3-5 departments. Each department has 5-10 computers. Choose the Frame Relay WAN connectivity between the branches. Design a network for ***A.B.C. Pvt. Ltd.*** by assuming the number of computers in each department using the class network 130.40.0.0. Show the IP addresses of routers, computers, network mask of each department of all branches and the DLCI (Data Link Connection Identifier) numbers of FR in the design. **20**

2. (a) Explain ATM cell format with neat labeled diagram. **10**
(b) Explain how ATM networks provide QoS guarantee. **10**

3. (a) Explain the three types of HDLC frames with neat labeled diagrams. **10**
(b) Explain the *STS-n* frame format with neat labeled diagram. **10**

4. (a) Explain the different issues in Access Network Design and Backbone Network Design. **10**
(b) Explain the terms SVC, PVC, DLCI, CIR, EIR, NNI and UNI w.r.t. Frame Relay. **10**

5. (a) A packet switch operating over a DS0 (56 Kbps) trunk has five users, each transmitting ten messages per second at 1024 bits per message in the ***packet-switched network***. Find system utilization (ρ), average number of users in the queue, average waiting time and average delay in the ***packet-switched network***. **10**
(b) Explain the following protocols used in Networking. **10**
ICMP, IGMP, ARP, RARP, UDP.

6. (a) Explain the process of ***Generic Standardization and Specification*** along with flowchart. **10**

   (b) Compare and contrast different WAN protocols. **10**

7. Write short notes on any **four** of the following :– **20**

   (a) SMDS

   (b) X.25

   (c) FDDI

   (d) Protocol Windowing

   (e) 802.4 Token Bus.