

( 3 Hours)

[Total Marks : 100

N. B. : (1) Question No. 1 is **compulsory**.(2) Attempt any **four** questions from the remaining.(3) Figures to the **right** indicate **full** marks.(4) Any assumptions should be **clearly** stated.

Elective I: Advance Computer Networks.

1. (a) What is Network Design ? Explain Network design steps citing examples of Network design. 10
- (b) Explain generic standardization and specification process. Explain different key players and their role in the process. 10
2. (a) Compare and contrast different WAN protocols. (IP, FR, ATM, X-25) 10
- (b) Explain SONET architecture. Explain different SONET Hardwares used in Networking. 10
3. (a) Explain different physical layer protocols and accessing technologies in computer Networks. 10
- (b) Compare FR and ATM w.r.t. QOS support to applications on Networks. 10
4. (a) Explain different mechanisms of congestion control in an ATM Network. 10
- (b) Explain different parameters used for Routing. Compare Distance Vector and Link state routing approaches. 10
5. (a) Explain the following protocols used in Networking : ICMP, IGMP, ARP, UDP. 10
- (b) Explain the following IP Address design issues : subnetting, supernetting, CIDR and NAT. 10
6. (a) Given a class C address of 198.62.193.0-255, design a network which has four routers (subnets), and each site (subnet) requires upto 10 hosts per subnet. Choose a appropriate subnet mask and design and list all the IP addresses of Routers, subnets and hosts on all the subnets. 10
- (b) Explain the relevance of traffic Engg. and Capacity planning to Network design process. 10
7. Write notes on (any **four**) :— 20
  - (a) SMDS and its formats
  - (b) Access layer design
  - (c) IPV4 v/s IPV6
  - (d) Backbone Network design
  - (e) X-25
  - (f) Socket primitives for transport layer protocol.