(2½ hours)

Total Marks: 75

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt *any two* of the following:** **10**
a. What are the responsibilities of Transport layer in TCP/IP Protocol suite?
b. Explain Subnetting giving example.
c. How to find the class of an IP address in classful addressing?
d. Write a note on Global Unicast Address that covers following:
Definition, Three levels of hierarchy.

2. **Attempt *any two* of the following:** **10**
a. ARP request is multicast and ARP reply is unicast. Explain.
b. Explain Input module and output module of ICMP.
c. Explain Data Transfer Phase of Mobile communication.
d. Explain two node instability problem in Distance vector routing and its solution.

3. **Attempt *any two* of the following:** **10**
a. Explain Features of UDP in detail.
b. Explain User datagram format.
c. Explain byte number, sequence number and acknowledgement number used in TCP with example.
d. Explain Connection establishment using three-way handshaking in TCP.

4. **Attempt *any two* of the following:** **10**
a. Explain SCTP services in detail.
b. Explain Data Chunk of SCTP with its packet format.
c. Draw and explain DHCP client state transition diagram.
d. Draw and explain Resource Record Format of DNS.

5. **Attempt *any two* of the following:** **10**
a. List and explain NVT Character set for option negotiation.
b. Explain Components of SSH.
c. Explain how file transfer is done in FTP.
d. Explain DATA and ACK message of TFTP

6. **Attempt *any two* of the following:** **10**
a. What is the role of Message Transfer Agent? How does SMTP work?
b. Explain data types and subtypes in MIME.
c. Explain digitizing of audio and video.
d. Explain Time Relationship and Time stamp characteristics of real-time audio/video communication.

7. **Attempt *any three* of the following:** **15**
a. Write points of comparison between IPv4 and IPv6.
b. Explain types of links available in OSPF.
c. List and explain UDP services.
d. Explain in detail generic domain, country domain and inverse domain.
e. Explain persistence and non-persistence connection of HTTP.
f. Draw and explain RTP Packet format.
