

(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 four levels of addresses used in an internet having TCP/IP protocols?
 - b. Compare IPv4 and IPv6.
 - c. Explain the concept of Network Address Translation.
 - d. One of the addresses in a block is 110.23.120.14/20. Find the number of addresses, the first address, and the last address in the block.
2. **Attempt any two of the following:** 10
 - a. Distinguish between static mapping and dynamic mapping.
 - b. List and explain various ICMP query messages.
 - c. Draw and explain Packet format of ATMARP.
 - d. State and explain the three phases that a mobile host goes through in order to communicate with a remote host.
3. **Attempt any two of the following:** 10
 - a. Describe the 3 Way handshake used for Connection Establishment in TCP.
 - b. Compare TCP Vs UDP.
 - c. Draw & explain UDP Packet Format.
 - d. Explain the control flags, window size and urgent pointer fields in the TCP header.
4. **Attempt any two of the following:** 10
 - a. Differentiate between a TCP header and a SCTP header.
 - b. Explain SCTP association establishment.
 - c. Write short note on DDNS.
 - d. Explain how DHCP operates when Client and server are on different networks.
5. **Attempt any two of the following:** 10
 - a. List and explain the three broad categories of documents in WWW.
 - b. What are the types of TFTP messages? What is the purpose of each one?
 - c. Explain in details component of SSH.
 - d. Write a note on HTTP.
6. **Attempt any two of the following:** 10
 - a. Explain the two techniques used for traffic shaping to improve Quality of Service.
 - b. Write a note on MIME.
 - c. What are the roles of Message Access Agent? How does POP3 works?
 - d. Explain MPEG Video compression.

[TURN OVER]

7. Attempt any three of the following:**15**

- a. An organization is granted the block 130.34.12.64/26. The organization needs four sub networks, each with an equal number of hosts. Design the sub networks and find the information about each network.
 - b. What are the different timers used in TCP? Explain.
 - c. Write a short note on telnet.
 - d. What are types of links in OSPF? Explain each in details.
 - e. Draw and explain DHCP client state transition diagram.
 - f. Write a note on FTP.
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