

(Time: $2\frac{1}{2}$ hours)

[Marks: 75]

Please check whether you have got the right question paper.

- 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** calculator is **allowed**.

1. **Attempt any two of the following:** 10
 - a. What is fragmentation? Which fields changes over datagram during fragmentation in routing? Explain.
 - b. Explain Dual stack and tunneling in IPV6.
 - c. Explain the options in IPV4.
 - d. Compare IPV4 with IPV6.
2. **Attempt any two of the following:** 10
 - a. What are the types of ICMP error messages? Explain.
 - b. Mobile IP communication can be inefficient. Why? What is its solution? Explain.
 - c. What is Address Resolution Protocol? What is its use? Explain the ARP request and reply messages.
 - d. What are the different RIP times? Explain the purpose of RIP timers.
3. **Attempt any two of the following:** 10
 - a. What are the services of TCP? Explain.
 - b. What is the concept of 3-way handshaking in TCP Connection establishment? Explain.
 - c. Compare TCP with UDP.
 - d. Explain the components of UDP package.
4. **Attempt any two of the following:** 10
 - a. Write a short note on DNS.
 - b. Explain SCTP association establishment and Termination.
 - c. Describe the DHCP client server operations in the different network.
 - d. What are the types of SCTP chunks? Explain the meaning of each.
5. **Attempt any two of the following:** 10
 - a. Explain the term NVT along with its character set.
 - b. Explain the architecture of WWW.
 - c. List and explain the types of FTP commands.
 - d. Describe the HTTP messages.

[TURN OVER]

6. Attempt any two of the following:**10**

- Explain video compression in MPEG
- Write a short note on MIME.
- What are the flow characteristics of QOS? Explain.
- Explain the following protocols: POP, IMAP

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

- Describe an IPV4 datagram header format.
- What are the types of OSPF Links? Explain.
- Explain the purpose of each TCP timer.
- Explain the header format of SCTP.
- What are the types of modes in TELNET? Explain.
- Describe the leaky bucket technique of traffic shaping.