QP Code : 26919

(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. Why do you need subnetting in classful addressing? Explain.
   b. Why do you need to fragment an IP datagram? Explain the fields related to it.
   c. Explain the concept of IP over ATM.
   d. Explain the extension headers in IPv6.

2. **Attempt _any two_ of the following:** 10
   a. Explain the packet format of ATMARP.
   b. List the error reporting messages in ICMP? Explain any one of them with its format.
   c. What is the inefficiency in mobile IP? Explain with the solution.
   d. How Bellman-Ford algorithm helps to find least cost between any two nodes? Explain

3. **Attempt _any two_ of the following:** 10
   a. Explain in detail UDP Package.
   b. What is the need of queues in UDP? Explain.
   c. Explain Numbering system used in TCP.
   d. Explain half-close of TCP.

4. **Attempt _any two_ of the following:** 10
   a. Explain format of DATA chunk and INIT chunk.
   b. How do you establish an association in SCTP? Explain,
   c. Draw and explain DHCP Packet Format.
   d. Explain types of records in DNS.

5. **Attempt _any two_ of the following:** 10
   a. Write a note NVT.
   b. Explain in detail the components of SSH.
   c. Which are the two approaches that FTP client and server uses to communicate with each other?
   d. Explain Persistence and non-persistence connection of HTTP.

6. **Attempt _any two_ of the following:** 10
   a. Explain the phases of mail transfer.
   b. What is the role of Message Access Agent? How does POP3 work?
   c. What is the concept of MIME? Explain its format.
   d. How do you compress an audio? Explain.

7. **Attempt _any three_ of the following:** 15
   a. Compare the IPv4 and IPv6 options.
   b. What are the types of links in OSPF? Explain each in detail.
   c. What are the options available in TCP? Explain each with its packet format.
   d. Draw and explain DHCP client state transition diagram.
   e. Describe the architecture of WWW.
   f. How do you download a compressed audio/video using a web server and using a media server? Explain.