

(3 Hours)

(Total Marks: 80)

- N.B.:** (1) **Question No.1 is compulsory.**
 (2) Answer **any three** out of remaining **five** Questions.
 (3) **Assumptions** made should be **clearly stated.**
 (4) **'Marks'** to the **right** indicate **full marks.**
 (5) Illustrate answers with **sketches** whenever **required.**
 (6) **Answer to questions should be grouped and written together.**

1. Attempt **any 4** :

- a) Explain the "Tunneling Procedure" in IPv6 protocol. **05**
- b) Explain the different RTCP messages used for real time communication. **05**
- c) Explain the need of audio or video compression in multimedia communication. **05**
- d) Differentiate between leaky bucket and token bucket methods of traffic shaping. **05**
- e) How is SCTP association different with respect to TCP connection establishment? **05**

2. a) An ISP is granted a block of addresses starting with 190.200.0.0/16. **12**
 What is the meaning of "/16"?

This ISP needs to distribute these addresses to three groups of customers as follows :

- i) First group has 64 customers each needing 256 addresses.
- ii) Second group has 128 customers each needing 128 addresses.
- iii) Third group has 128 customers each needing 64 addresses.

Allocate the sub-blocks and find out how many addresses are still available after these allocations.

- b) With the help of a transition diagram, explain DHCP protocol. Also, calculate the renewal and rebinding time if lease time provided is 8 hours. **08**

3. a) Explain the different traffic scheduling techniques used for providing QoS. **10**
 b) Explain in brief the characteristics "Jitter", "timestamp", "Mixing" and "Translation" in real time audio and video communication with respect to RTP. **10**

4. a) Elaborate on PGP scenarios for Application layer security. **10**
 b) Explain how DNS queries are resolved by iterative and recursive methods and also explain why caching is required in DNS? **10**

5. a) Compare the procedures : streaming of stored audio/video, streaming live audio/video and interactive audio/video over Internet. **10**
 b) Explain MPEG for video compression in detail with reference to JPEG compression. **10**

6. Write a note on (**any four**) : **20**
- a) SSL/TSL protocol for transport layer security
 - b) H.261
 - c) ICMPv6 messages
 - d) RSVP : reservation protocol