

(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