Examination	: Third Sessional	Seat No.	: ___
Date	:	Day	:
Time	: 11 to 12:15	Max. Marks	: 36

INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 Do as directed.   **[12]**

   (a) (I) MTU is specified by   **[2]**
      (A) IP Datagram size **(B)** Hardware technology **(C)** TCP Segment size **(D)** None of the above.

      (II) FTP does not use
      (A) Two transfer mode. **(B)** Control connection to remote computer before file can be transferred. **(C)** User Datagram Protocol. **(D)** Authorization of a user through login and password verification.

   (b) If client and server are communicating using UDP protocol and the UDP segment contains only ACK then what is the size of packet for this segment at network layer?   **[2]**

   (c) During an FTP session the data connection is opened _____ and control connection is opened _____(exactly once, exactly twice, as many time as necessary)   **[2]**

   (d) When web pages containing emails are sent out they are prefixed by MIME Header. Why?   **[1]**

   (e) Differentiate between http and https.   **[1]**

   (f) When a connection is idle for a long time then which timer of TCP is used to check other side is still there or not?   **[1]**

   (g) What is the use of urgent pointer in TCP segment?   **[1]**

   (i) The addressing especially used by Transport Layer is_____.   **[1]**

   (j) What is internet daemon?   **[1]**

Q.2 Attempt *Any Two* from the following questions.   **[12]**

   (a) (I) What is trival file transfer protocol? Explain briefly.   **[2]**
      (II) How aliases are used in DNS? Explain.   **[2]**
      (III) Explain the meaning of following socket primitive: **[2]**
         BIND, LISTEN, ACCEPT and CONNECT.

   (b) (I) Why Gateways are used during mail transfer?   **[2]**
      (II) Write a solution for sender & receiver given by Nagle and Clark. **[2]**
      (III) What are the differences between TCP and UDP?   **[2]**

   (c) (I) Is TCP checksum necessary or could TCP allow IP to checksum the data? Explain   **[2]**
      (II) Define: (a) Encryption. (b) Socket   **[2]**
      (III) What are TSAP and NSAP?   **[2]**

Q.3 (a) (I) Explain Three-Way Handshake Mechanism used by TCP to terminate a Session.   **[4]**
      (II) Write down the characteristic of TCP protocol.   **[2]**

   (b) (I) If TCP RTT is currently 30 msec & the following acknowledgements come in after 26, 32 and 24 msec respectively. What is the new RTT estimate? (use $\alpha = 0.9$) **[3]**
      (II) What is delayed duplicate problem? Write various solution of it. **[3]**

                                         OR

Q.3 (a) (I) Consider slow start algorithm of TCP congestion control with THRESHOLD is 10. Suppose initial segment size is 2 bytes then what is the size of segment during 6th transmission?   **[3]**
      (II) How can we achieve confidentiality and authentication in cryptography? **[3]**

   (b) Write a short note on: **[6]**
      (A) DNS
      (B) Network Baseline
      (C) Firewall