12425

3 Hours / 70 Marks   Seat No.

Instructions :   (1)   All Questions are *compulsory.*

(2)   Illustrate your answers with neat sketches wherever necessary.

(3)   Figures to the right indicate full marks.

(4)   Assume suitable data, if necessary.

(5)   Preferably, write the answers in sequential order.

Marks

1.   **Attempt any FIVE of the following :**   **10**

(a)   State any two advantages of IPv6 Protocol over IPv4 Protocol.

(b)   Enlist any four extension headers of IPv6.

(c)   Compare SMTP and HTTP w.r.t. (i) use of port number (ii) used for type of service.

(d)   Enlist any two services provided by UDP.

(e)   Draw a neat labelled sketch of TCP Header format.

(f)   State the use of following FTP commands :

(i)   M get

(ii)   Site

(g)   State any two limitations of IPv4 Protocol.

2. **Attempt any THREE of the following :** 12

   (a) Compare TCP and UDP w.r.t (i) Connection setup (ii) Retransmission of data (iii) Reliability & acknowledgement (iv) Flow control & error control

   (b) Draw a neat labelled sketch of IPv4 Header format. Also explain

      (i) Service type

      (ii) Identification

      (iii) Flag

      (iv) Header checksum fields of it

   (c) Explain in brief the components of DHCP.

   (d) A block of IP address is granted to a small organization. From this block of address one address is 205.16.37.39/28.

      Find

      (i) First address of the block

      (ii) Last address of the block

      (iii) Subnet Mask

      (iv) No. of Hosts

3. **Attempt any THREE of the following :** 12

   (a) Describe Routing Information Protocol (RIP).

   (b) Explain in brief following IPv4 to IPv6 transition techniques :
      (i) Dual stack
      (ii) Header Translation

   (c) Compare FTP and TFTP w.r.t.
      (i) Authentication
      (ii) Protocol used
      (iii) Ports
      (iv) Data Transfer

   (d) Explain connection establishment process of TCP.

4. **Attempt any THREE of the following :** **12**

    (a)   Explain the process of resolving the host name www.msbte.org into IP address using DNS.

    (b)   Enlist any four features of OSPF. Explain any two OSPF features in brief.

    (c)   Explain the working of TELNET.

    (d)   Describe the flow control in TCP.

    (e)   Explain the operations of POP3.

5. **Attempt any TWO of the following :** **12**

    (a)   Explain following services provided by TCP with neat labelled sketch of each service :

        (i)   Stream delivery service

        (ii)   Sending and receiving buffer

        (iii)   Bytes and segments

    (b)   How flow control, congestion control and error control is handled by SCTP ?

    (c)   Draw a neat labelled sketch of IPv6 header format and explain all the fields of IPv6 header.

6. **Attempt any TWO of the following :** **12**

    (a)   Compare distance vector routing and link state routing w.r.t.

        (i)   Concept

        (ii)   Information sharing

        (iii)   Algorithm used

        (iv)   Convergence

        (v)   Problem in Protocol

        (vi)   Example Protocol

(b) For the following IP address given below :

    (i)   208.34.54.12

    (ii)   238.34.2.1

    (iii) 114.34.2.8

    (iv) 129.14.6.8

    (1)   Identify the classes of IP address.

    (2)   Identify Network address section of each.

    (3)   Identify Host address section of each.

    (4)   Calculate number of Hosts that can be assigned with each network.

(c) Explain three main components of E-mail system.

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