22634

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

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

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **Attempt any <u>FIVE</u> of the following:**   **10**

a) Define bit rate and baud rate.

b) State two advantages of computer networks.

c) State any two functions of data link layer in TCP/IP protocol suite.

d) Compare TCP/IP and OSI reference model. (Any two points)

e) State the application of microwave transmission.

f) List four network connecting devices.

g) State the need for IPv6.

Marks

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

   a) Draw the block diagram of data communication system and state the function of each block.

   b) Compare LAN and WAN on the basis of following parameters.

      i) Geographical area

      ii) Bandwidth

      iii) Communication medium

      iv) Installation cost

   c) Explain port addressing and application specific addressing in TCP/IP reference model.

   d) Draw and explain the frame format of point-to-point protocol.

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

   a) State the names of the layers that perform the following functions -

      i) Encryption / Decryption

      ii) Logical Addressing

      iii) File transfer

      iv) Error Correction

   b) Generate the CRC code for the dataword of 111011001. The divisor is 10101.

   c) Draw a diagram to establish a network for a computer laboratory with 6 computers having internet facility using the following devices.

      i) Switch

      ii) Router

   d) Explain the concept of FTP with neat diagram.

Marks

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

   a) With the help of block diagram, explain the working principle of FDM.

   b) A bit word 1011 is to be transmitted. Construct the even parity 7-bit Hamming code for this data.

   c) Compare coaxial cable and twisted pair cable.

   d) On which layer the following devices work.

     i) Bridge

     ii) Hub

     iii) Switch

     iv) Router

   e) Explain the concept of datagram packet switching with neat diagram.

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

   a) Explain with diagram the process of client-server and peer to peer network architecture.

   b) Describe the functions of

     i) Transport layer

     ii) Network layer of OSI model

   c) Draw the labelled construction of Fibre optic cable. State four advantages compared to copper cables.

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

   a) With suitable diagram explain the following topologies.

     i) Bus Topology

     ii) Star Topology

   b) Explain one-bit sliding window protocol with example.

   c) Draw the block diagram of Symmetric Key Cryptography and state the function of various components. Compare symmetric and Asymmetric Key Cryptography.

———