22634

Seat No.

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

(2) Answer each next main Question on 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 FIVE of the following:** **10**

a) Define following terms:

   i)   bit rate

   ii) baud rate

b) Classify networks on the basis of transmission technologies.

c) Compare TCP/IP and OSI reference model (any two points)

d) Name the layer of the OSI model at which the mechanical, electrical, functional and procedural characteristics are defined. State its function.

e) State two advantages of coaxial cable.

f) List four network connecting devices.

g) State the need for IPv6.

Marks

2.   **Attempt any <u>THREE</u> of the following:**   **12**

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

b) Compare Peer-to-Peer and Client - Server architecture on the basis of -

     i)   Cost

     ii)   Performance

     iii)   Backup

     iv)   Security

c) Explain different functions of datalink layer of OSI reference model.

d) Describe hamming code error correction technique with the help of example.

3.   **Attempt any <u>THREE</u> of the following:**   **12**

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

     i)   Data Encryption

     ii)   File transfer

     iii)   Error Correction

     iv)   Data Encoding

b) Summarize the frame format of PPP protocol.

c) Draw a diagram to establish a network for a computer laboratory with 5 computers having internet facility using the following devices.

     i)   Switch

     ii)   Router

d) Compare TPv4 and IPv6 on the basis of –

     i)   Address Length

     ii)   Packet Size

     iii)   Configuration

     iv)   IP Security

Marks

4. Attempt any <u>THREE</u> of the following: 12

a) State the need of multiplexing and switching. Summarize the situations for the implementations of TDM, FDM, Circuit Switched Network & Packet Switched Network.

b) Explain a one bit sliding window protocol under normal condition and with damaged frame with suitable diagram.

c) Draw structural diagram of fiber optic cable and write its functions.

d) On which layer of OSI reference model following protocol works –

   i) UDP

   ii) IP

   iii) FTP

   iv) SCTP

e) Explain datagram approach for packet switching.

5. Attempt any <u>TWO</u> of the following: 12

a) With a suitable diagram, explain the following topologies.

   i) Bus topology

   ii) Ring topology

b) Draw layered architecture of the OSI model. State the functions of various layers.

c) Explain microwave transmission with its advantages and disadvantages.

6. Attempt any <u>TWO</u> of the following: 12

a) Draw and explain architecture for network using tree topology for an office in 3 - Storey building.

b) Explain stop and wait ARQ with example.

c) Explain the addressing scheme in IPv4 and IPv6, when IPv6 protocol is introduced, does the ARP protocol have to be changed? Explain in details.

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