22414

12526

3 Hours / 70 Marks Seat No. | | | | | | | | |

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 FIVE of the following : **10**

a) List the modes of communication.

b) Define Computer Network.

c) Compare guided and unguided Transmission media. (Any two points)

d) State the types of error.

e) Define the term CRC.

f) Compare HUB and switch. (Any two points.)

g) Enlist any four IP address classes with their IP address range.

Marks

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

a) Explain any four benefits of computer network.

b) Draw structure of fiber-optic cable and describe its components.

c) Explain features of IEEE communication standards given below :-

i) 802.1

ii) 802.2

iii) 802.3

iv) 802.4

d) Explain address resolution protocol with suitable diagram.

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

a) State the advantages of packet switching over circuit switching.

b) Draw and explain the process of data communication model.

c) Differentiate between Router and switch with respect to layer, speed, Addresses, Algorithm.

d) Draw OSI reference model. Explain the functions of any three layers.

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

a) Draw with neat labelled diagram of star-bus topology connecting three star networks having three computers in two stars and two computers in one star.

b) Differentiate between IPv4 and IPv6. (Any four points)

c) Explain TDM with the help of neat diagram.

d) Draw and explain TCP/IP layered architecture.

e) Draw and explain Architecture of wireless LAN 802.11.

Marks

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

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

b) You are installing a new network for a company that is growing rapidly. The current design for 50 computers with expansion to 100 in next six months, because of the speed at which the network is expected to grow, you want to make trouble shooting will be as easy as possible. Which topology should be used in network? Justify your answer.

c) Classify the following protocols into connection oriented and connectionless protocols and state the layers at which the following protocols works.

i) TCP

ii) SLIP

iii) IP

iv) UDP

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

a) A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is X3 + 1. Show the actual bit string transmitted. Suppose the third bit from the left is inverted during transmission. Show that this error is detected at the receivers ends.

b) A company is granted a site address 201.70.64.0. The company needs six subnets. Design the subnets.

c) Explain microwave transmission with its advantages and disadvantages.
