22414

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) Define computer Network.

b) Describe date communication standards

c) State any two types of unguided media

d) State any two limitations in Bluetooth

e) Describe single Bit error and Burst error.

f) List any four Network connecting devices.

g) List any four application layer protocol.

Marks

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

a) Explain the components of Data communication.

b) Describe Propagation modes in fibre optic cable.

c) Compare 3G and 4G mobile Generations on the basis of data speed, technology, standard and services.

d) Describe the process of DHCP server configuration.

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

a) Describe Satellite communication with neat diagram.

b) Describe modes of communication

c) Describe the working of Router with suitable diagram.

d) Name the Protocols used in

  i) Data Link Layer

  ii) Network Layer

  iii) Transport Layer

  iv) Presentation Layer

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

a) Compare FDM and TDM (Any 4 points each)

b) Define IP addressing. List IP address classes with their range of addresses

c) Describe the principles of packet switching techniques with neat diagram.

d) Describe OSI reference model with its Layered structure.

e) The following bit stream is encoded with VRC, LRC and even parity. Locate and correct the error if it is present.

```
1 1 0 0 0 0 1 1        1 1 1 1 0 0 1 1
1 0 1 1 0 0 1 0        0 0 0 0 1 0 1 0
0 0 1 0 1 0 1 0        0 0 1 0 1 0 1 1
1 0 1 0 0 0 1 1        0 1 0 0 1 0 1 1
1 1 1 0 0 0 0 1
```

Marks

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

a) Differentiate any six point between LAN and WAN.

b) Write steps to prepare crossover and straight cable using twisted pair cable.

c) Compare IPv_4 and IPv_6. (Any six point each)

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

a) Calculate CRC for the frame 110101011 and generator Polynomial $X^4 + X + 1$ and write the transmitted frame.

b) Compare OSI and TCP/IP network model (any six point each)

c) Draw suitable network layout with star topology for a computer lab with 10 hosts and a wireless printers. List all components in the Layout.

————