22322

12425

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.

Marks

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

(a) Define with reference to Analog to Analog conversion :

(i) Modulation

(ii) Bandwidth

(b) Define point to point communication and broadcast communication with suitable example.

(c) State two applications of Infrared transmission.

(d) State two characteristics of Circuit Switched Networks.

(e) State the need for multiplexing in data communication.

(f) State two limitations of parity checking for error detection.

(g) State two features of Near field communication.

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

(a) Explain Half Duplex and Full Duplex Communication modes with suitable examples and diagram.

(b) State two advantages and two disadvantages of Standards.

(c) Draw a labelled diagram of Coaxial Cable. State two features.

(d) With the help of diagram explain the principle of working of Time Division Multiplexer.

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

(a) Draw ASK and PSK waveforms for the bit sequence 11001001.

(b) Compare TDM and FDM on the basis of :

(i) Type of signals transmitted

(ii) Interference

(iii) Synchronization pulse

(iv) Equipment required

(c) Compare circuit switching and packet switching networks.

(d) Assuming odd parity, find parity bit for the following frames :

(i) 1001001 (ii) 1101001

(iii) 1100110 (iv) 1000001

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

(a) Explain frequency modulation process with neat diagram.

(b) Draw a labelled diagram of twisted pair cable. What is the function of the twisting in twisted pair cable ?

(c) Assume that a voice channel occupies a bandwidth of 4 KHz. It is required to multiplex 12 voice channels with guard band of 500 Hz using FDM. Calculate the required Bandwidth.

(d) Explain with diagram, "Stop & Wait" flow and error control technique.

(e) Explain Bluetooth piconet and Scatternet architecture.

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

(a) Draw the block diagram of satellite communication. State the function of various blocks. Explain the reason for the uplink and downlink frequency being different.

(b) Explain with suitable diagrams the Basic Service Set and Extended Service Set with reference to wireless LAN.

(c) Explain the CRC Error detection mechanism with a suitable example.

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

(a) With the help of a diagram, explain Wave Division Multiplexing. Give its application.

(b) Compare FHSS and DSSS on the basis of :

(i) Definition

(ii) Modulation Technique

(iii) Chip rate

(iv) Acquisition time

(v) Application

(vi) Security

(c) State the name of the layers that perform the following functions :

(i) Data Encryption

(ii) Error Correction

(iii) File transfer

(iv) Data Compression

(v) Determine the transmission rate

(vi) Framing