23124

3 Hours / 70 Marks   Seat No.

Instructions :   (1)   All Questions are *compulsory.*

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

(3)   Figures to the right indicate full marks.

(4)   Assume suitable data, if necessary.

(5)   Use of Non-programmable Electronic Pocket Calculator is permissible.

(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 modulation index of AM and FM.

(b)   State the advantages of digital communication system.

(c)   List advantages and disadvantages of TDM.

(d)   Compare two data communication protocols. (any 4 points)

(e)   State the concept of Telesurgery.

(f)   State the applications of delta modulation.

(g)   How to measure body temperature using telemetry.

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

(a)   Draw and explain electromagnetic spectrum.

(b)   Describe the working principle of BPSK with neat circuit diagram.

(c)   Draw ASK and PSK signal for 10010101.

(d)   Explain the types of transmission modes used in data communication with neat sketch.

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

   (a) Give the ethical and legal aspect of internet medical services.

   (b) Explain the block diagram of generation of AM.

   (c) Draw and explain neat diagram of Superheterodyne radio receiver.

   (d) Compare Synchronous and Asynchronous data transmission (any 4 points).

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

   (a) Explain amplitude demodulation by germanium diode with neat diagram.

   (b) Explain OSI model with neat sketch.

   (c) Describe the serial interface standard RS 232.

   (d) Describe the operation of multichannel biotelemetry system with neat diagram.

   (e) State the concept of telepsychiatry.

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

   (a) Draw AM waveform for under modulation, over modulation and 100% modulation.

   (b) Explain the block diagram of PCM generation with input-output waveforms.

   (c) Draw a schematic diagram of TDM and FDM system. Also state two applications of each.

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

   (a) Draw waveform for digital data 11011001 in unipolar NRZ, polar RZ, Manchestor, AMI, differential manchestor.

   (b) Explain the operation of DPSK transmitter with neat block diagram.

   (c) State the advantages and disadvantages of TDMA, FDMA and CDMA.

——————————