

22437

23242

3 Hours / 70 Marks

Seat No.

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- 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) 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 :

10

- (a) Define the terms :
 - (i) Modulation
 - (ii) Demodulation
- (b) Define Sampling theorem.
- (c) Define Multiplexing. State its need.
- (d) Classify the different data encoding techniques.
- (e) State the meaning of the terms :
 - (i) Tele-Psychiatry
 - (ii) Tele-Dermatology



- (f) Define the term Quantization with reference to PCM.
- (g) State the need for Tele-radiology.

2. Attempt any THREE of the following :

12

- (a) Draw the block diagram of a basic communication system and state the function of each block.
- (b) State the bandwidth requirement of ASK, FSK, PSK and QPSK.
- (c) List and explain limitations of Delta modulation with neat waveform.
- (d) Draw the 9 pin configuration of RS 232 serial interface standard. State the function of each pin.

3. Attempt any THREE :

12

- (a) Explain the ethical aspects of internet medical services.
- (b) Compare AM and FM on the basis of :
 - (i) Definition
 - (ii) Modulation Index
 - (iii) Bandwidth
 - (iv) Application
- (c) Draw the block diagram of Super-heterodyne AM receiver and explain the function of each block.
- (d) Compare OSI and TCP/IP reference model.

4. Attempt any THREE :**12**

- (a) Draw the circuit of a simple diode detector. Explain its working. Draw the waveforms (input/output).
- (b) Explain the different modes of data transmission of signals.
- (c) Compare synchronous and asynchronous transmission of data on the basis of
 - (i) Transmission technique
 - (ii) Distance limitation
 - (iii) Loss of Bandwidth
 - (iv) Synchronization method
- (d) Draw the block diagram of a multichannel biotelemetry system and explain.
- (e) Write strengths and limitations of Telemedicine.

5. Attempt any TWO :**12**

- (a) Compare PAM, PWM and PPM on the basis of :
 - (i) Definition
 - (ii) Waveforms
 - (iii) Noise immunity
 - (iv) Transmission power
- (b) For the data sequence 1011011001, draw the ASK, FSK and PSK waveforms.
- (c) Compare TDM & FDM based on their strength and limitation.

P.T.O.

6. Attempt any TWO :**12**

- (a) Encode the bit sequence 10101101 using the following encoding techniques :
- (i) Polar RZ
 - (ii) Biphas differential Manchester
 - (iii) Unipolar NRZ
- (b) Draw the block diagram of a PCM transmitter and explain the function of each block.
- (c) Explain the principle of working of CDMA. State the advantages of CDMA over TDMA and FDMA.
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