

# 22437

**11920**

**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 answer with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. **Attempt any FIVE of the following:** **10**
- Define the term noise.
  - State the sampling theorem.
  - List advantages of TDM.
  - List the different types of data transmission.
  - List the application of Tele-medicine.
  - List the limitation of PCM.
  - State the necessity of sports physiology studies through telemetry.

P.T.O.

2. Attempt any THREE of the following: 12
- a) Describe the AM transmitter with neat diagram.
  - b) Draw the block diagram of PCM transmitter. State the function at each block.
  - c) Draw Ask and Fsk signal for 1100101011.
  - d) List various data encoding techniques.
3. Attempt any THREE of the following: 12
- a) Describe ethical and legal aspect of internet medical services.
  - b) Draw amplitude modulated waveform for the condition.
    - (i)  $m = 0\%$
    - (ii)  $m = 100\%$
    - (iii)  $m < 100\%$
    - (iv)  $m > 100\%$
  - c) Define the term demodulation. Draw any one circuit for AM demodulator.
  - d) For the data stream 10110011. Draw the following.
    - (i) Unipolar NRZ
    - (ii) Differential Manchester

- 4. Attempt any THREE of the following:** **12**
- a) Compare PAM and PPM on the basis of any four points.
  - b) State the function of following layers of OSI model
    - (i) Physical Layer
    - (ii) Network Layer
    - (iii) Transport Layer
    - (iv) Application Layer
  - c) State the electrical characteristics of RS232 standard.
  - d) Draw the block diagram of single channel biotelemetry system for ECG.
  - e) State the concept of tele-surgery and tele-psychiatry.
- 5. Attempt any TWO of the following:** **12**
- a) Compare AM and FM (6 points)
  - b) Describe the block diagram of digital communication system.
  - c) Describe the working FDM with its transmitter and receiver.
- 6. Attempt any TWO of the following:** **12**
- a) Define the term data transmission. Identify type of data transmission mode for
    - (i) TV Broadcasting
    - (ii) Walky-talky
    - (iii) Talking on mobile phone
    - (iv) FM Broadcasting
  - b) List limitation and application of delta modulation also draw the block diagram of delta modulation.
  - c) Describe the working of CDMA also. List its strengths and limitation.
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