



# 17519

16172

3 Hours / 100 Marks

Seat No.

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- Instructions :** (1) *All questions are compulsory.*  
(2) *Illustrate your answers with neat sketches wherever necessary.*  
(3) *Figures to the right indicate full marks.*  
(4) *Use of Non-programmable Electronic Pocket Calculator is permissible.*  
(5) *Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.*

**Marks**

1. Attempt **any three** of the following : **12**
- a) i) State the concept of noise in the electronic communication system.
  - ii) Describe the working of phase shift keying with Block diagram.
  - iii) How cell splitting take place in mobile communication with neat diagram ?
  - iv) Draw the block diagram of high level AM transmitter. Explain the function of each block.
- b) Attempt **any one** of the following : **6**
- i) Find out the bandwidth required for FM in which maximum deviation is 8 KHz and  $m_f = 5$ . Assume highest needed standards are 8.
  - ii) Draw block diagram of QPSK and explain its working principle. State its application.
2. Attempt **any four** of the following : **16**
- a) State the Sampling Theorem. What is Nyquist criteria ?
  - b) Draw the block diagram of superheterodyne receiver. Explain the function of each block (for AM).
  - c) Explain Shanon's theorem on the channel capacity.
  - d) What are the types of Encoding technique ? Why encoding is necessary in digital communication ?
  - e) Explain forward and reverse call processing.
  - f) State application of satellite communication.
3. Attempt **any four** of the following : **16**
- a) State the diagram of implementation of Pulse Position Modulation (PPM) from PWM. Draw the waveform of PPM.
  - b) Compare Natural Sampling and Flat Top sampling on the following points.
    - 1) Sampling rate
    - 2) Signal power
    - 3) Bandwidth requirement
    - 4) Waveform
  - c) Draw the block diagram of digital modulation system. State the function of each block.

**P.T.O.**

