



21718

17519

3 Hours / 100 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.*
 - (5) *Assume suitable data, if necessary.*
 - (6) *Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.*

Marks

- 1. a) Attempt any three :** **12**
- i) Define modulation index for AM and FM. State its importance.
 - ii) Draw the waveform for ASK for bit sequence 10110100. Give two advantages of ASK over FSK.
 - iii) Define multiplexing. State its types. What is the need for multiplexing ?
 - iv) Draw FM wave in time and frequency domain.
- b) Attempt any one :** **6**
- i) Give the classification of communication system. Define Amplitude modulation and frequency modulation.
 - ii) Draw the block diagram for generation of BPSK signal. Draw the waveform of BPSK for bit sequence 10111010.
- 2. Attempt any four :** **16**
- i) Define and describe PWM with suitable waveform.
 - ii) Draw the block diagram of FM receiver and explain the working.
 - iii) Draw the block diagram of QPSK modulator and explain the working.
 - iv) Encode the bit stream 11011010 using the following encoding techniques.
 - a) Unipolar NRZ
 - b) AMI
 - c) Manchester
 - d) Bipolar RZ.
 - v) Draw the block diagram and explain the working of FDM.
 - vi) Draw the block diagram of satellite communication system and explain its working.

P.T.O.



- 3. Attempt any four :** **16**
- i) Draw the block diagram for generation of PPM. Describe its working with waveform.
 - ii) State Sampling Theorem. Write an equation for Sampling rate and Nyquist rate.
 - iii) Draw the block diagram of DPSK transmitter state two advantages and disadvantages.
 - iv) List two advantages and two disadvantages of polar encoding.
 - v) State advantages, disadvantages and application of TDM.
- 4. a) Attempt any three :** **12**
- i) Explain ionospheric wave propagation with the help of neat diagram.
 - ii) Draw the waveform for the bit sequence given below, 11001010 using unipolar RZ and Polar RZ encoding technique.
 - iii) Draw FSK waveform for a given bit sequence 10101110. State its advantages over ASK.
 - iv) Describe the concept of frequency reuse.
- b) Attempt any one :** **6**
- i) Draw the block diagram of PCM transmitter. Describe function of each block with waveform.
 - ii) Describe Handoff mechanism, explain any one type of handoff mechanism.
- 5. Attempt any four :** **16**
- i) Compare PAM, PWM system, with respect to :
 - i) Bandwidth
 - ii) Transmitted Power
 - iii) Noise immunity
 - iv) Waveform.
 - ii) Draw the block diagram of AM transmitter (low level modulation). Describe its operation.
 - iii) Draw the block diagram of Digital Communication system state two advantages of it.
 - iv) Compare baseband and passband transmission. State the limitation of baseband transmission.
 - v) State the types of encoding technique. How encoding differs from modulation ?
 - vi) State the steps for forward and reverse call processing. (Handset to Handset) in mobile communication.
- 6. Attempt any four :** **16**
- i) Compare natural and flattop sampling.
 - ii) Draw basic block diagram of electronic communication system and explain each block.
 - iii) Differentiate between PCM (Pulse Code Modulation) and DM (Delta Modulation).
 - iv) Describe principle of CDMA and state its advantages.
 - v) Describe the concept of cell splitting and state its need.
 - vi) With the help of example, define :
 - i) Bit rate
 - ii) Baud rate.
-