TH-III Analog and Digital Communication

Full Marks: 80   Time- 3 Hrs

Answer any five Questions including Q No.1& 2

Figures in the right-hand margin indicates marks

1.   Answer **All** questions   2 x 10

     a. Draw the block diagram showing basic elements of a communication systems.

     b. State Shannon's information capacity theorem.

     c. Differentiate between analog and digital signal.

     d. Define modulation index of an FM signal.

     e. Write two disadvantages of Amplitude modulation.

     f. Define noise figure and fidelity of a receiver.

     g. Mention the corrective measures taken to avoid aliasing during sampling.

     h. Draw the wave forms for Pulse Width Modulation (PWM) and Pulse Position Modulation (PPM)

     i. Compare between bit rate and baud rate.

     j. What are the applications of GMSK?

2.   Answer **Any Six** Questions   5X6

     a. State the advantages and disadvantages of digital communication.

     b. Define modulation. Explain the needs for modulation.

     c. Explain the generation and detection of coherent binary PSK signal.

     d. Explain the generation and detection of Delta Modulation.

     e. Differentiate between AM and FM.

     f. Define time division multiplexing (TDM). Explain the concept of TDM with the help of block diagram.

     g Explain demodulation of AM wave using linear diode detector.

3	Describe the working of AM superheterodyne receiver with neat block diagram.	10
4	Draw the block diagram for transmitter and receiver of a PCM and explain the function of each block	10
5	Define FM. Explain the generation of FM wave using Armstrong method.	10
6	Explain the generation (ring modulator) and detection (synchronous detector) of DSB-SC.	10
7	Derive the expression for single tone AM wave. Calculate the power relations and modulation index.	10