

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.

# Module-3

- Describe with neat diagram the generation and detection of BPSK. Also derive the 5 a. probability of error for coherent detection. (10 Marks)
  - Using block diagram, explain the generation and detection of QPSK signal. (10 Marks) b.

# OR

- Derive the expression for average probability of error for FSK using coherent detection. 6 a. (10 Marks) Explain transmitter and coherent receiver of FSK.
  - Explain with block diagram the non-coherent detection of FSK signals. (06 Marks) b.
  - Encode the binary sequence using DPSK 11011011. Assume reference bit as '1'. (04 Marks) C.

### Module-4

- Explain the digital PAM transmission system. Also derive the expression for Inter Symbol 7 a. (10 Marks) Interference (ISI).
  - Illustrate the due-binary and modified duo-binary signals in time-domain and frequency b. (10 Marks) domain.

## OR

- Describe the Nyquist criterion for distortion less base band binary transmission and find out 8 a. (10 Marks) the ideal solution for zero-ISI.
  - The input to the preorder is a binary sequence 1 0 0 1 0 1 1 0 0. Obtain the preceded b. sequence, transmitted amplitude levels, the received signal levels and the decoded sequence (06 Marks) for due-binary system. (04 Marks)
  - Write short note on-eye diagram. C.

#### **Module-5**

- Illustrate the working of Direct-sequence spread spectrum transmitter and receiver with 9 a. (10 Marks) block diagram, waveforms and expression.
  - Explain frequency hop spread spectrum system with neat block diagram. (10 Marks) b.

### OR

- Illustrate the CDMA system forward link base on IS-95. (10 Marks) 10 a.
  - Write note on application of spread spectrum in wireless LAN's. (04 Marks) b.
  - Obtain the PN sequence from the given PN sequence generator, assume 100 is a initial state. C. (06 Marks)





2 of 2