

III B. Tech I Semester Supplementary Examinations, July -2023
PRINCIPLES OF COMMUNICATIONS
 (Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
 All Questions Carry Equal Marks

UNIT-I

1. a) What is threshold effect in an envelop detector? Explain [7M]
 b) Describe the SSB in frequency domain and then explain how to generate SSB modulated wave using frequency discrimination method. Also, list the advantages of SSB. [7M]

(OR)

2. a) Explain the phase discrimination method for generating SSB signal. [7M]
 b) Explain about COSTAS loop with a neat block diagram for demodulating DSB-SC wave. [7M]

UNIT-II

3. a) Explain the difference between narrow band FM and Wideband FM. [7M]
 b) Explain the methods of FM Generation. [7M]

(OR)

4. a) What are the principal merits and limitations of FM. [7M]
 b) Explain the Generation of Narrowband FM. [7M]

UNIT-III

5. a) Distinguish between instantaneous sampling, natural sampling and flat top sampling. [7M]
 b) Compare PAM and PPM. [7M]

(OR)

6. a) With the help of neat diagram explain the transmission and reception of PCM. [7M]
 b) Explain the merits and demerits of PWM. [7M]

UNIT-IV

7. a) Explain about the noise performance of an FM receiver. [7M]
 b) Explain about pre emphasis and de emphasis in FM systems. [7M]

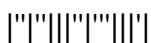
(OR)

8. a) Explain the noise performance of DSB-SC receiver. [7M]
 b) Compare the noise performance of FM and AM systems. [7M]

UNIT-V

9. a) Explain BPSK system with the help of Transmitter & Receiver. [7M]
 b) Derive an expression for spectrum of BPSK system and calculate Bandwidth requirement. [7M]

(OR)



10. a) With relevant expression and block diagrams, explain the operation of M-ary FSK Transmitter and receiver. [7M]
- b) Consider (7, 4) linear code whose generator matrix is [7M]

$$G = \left[\begin{array}{cccc|ccc} 1 & 0 & 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 0 & 1 & 1 & 1 \\ 0 & 0 & 1 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 1 & 1 \end{array} \right]$$

- i) Find all code vectors of this code, ii) Find the parity check matrix for this code.

