

6235

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER/NOVEMBER—2023
DECE - THIRD SEMESTER EXAMINATION

ANALOG AND DIGITAL COMMUNICATION SYSTEMS

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define frequency modulation.
2. State the need of modulation in communication systems.
3. Define the terms (a) signal to noise ratio and (b) noise figure.
4. State sampling theorem.
5. Define overhead and efficiency of data communication system.
- * 6. List different error detection schemes.
7. Compare low-level modulation with high-level modulation.
8. Define the terms (a) sensitivity and (b) selectivity of a radio receiver.
9. State the need of multiplexing.
10. Compare TDM with FDM.

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PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** (a) Derive the relationship between total power and carrier power in AM. 6
(b) A 20 watts carrier is modulated to a depth of 65%. Calculate (i) the total power in AM and (ii) the side band power. 4
- 12.** (a) Derive the time domain equation for an AM signal. 6
(b) List the merits of FM over AM. 4
- 13.** Explain the relationship between Channel bandwidth, baseband bandwidth and transmission time. 10
- 14.** Describe the coding and decoding of a PCM signal. 10
- 15.** (a) Explain ASK modulator with block diagram. 5
(b) Explain LRC method of error detection with an example. 5
- 16.** Draw the block diagram of high level modulated transmitter and explain its working. 10
- * **17.** Explain the working of super heterodyne receiver with a block diagram. 10
- 18.** Explain frequency division multiplexing with block diagram. 10

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