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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DBME – FOURTH SEMESTER EXAMINATION

COMMUNICATION AND DATA TRANSMISSION

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. Classify different modulation schemes.

2. State the need for pre emphasis in FM.

3. Classify the radio receivers.

4. Draw block diagram of AM transmitter.

5. State the purpose of an antenna.

6. Define the following terms with respect to antenna :
beam width, effective length

7. State the relation between information rate and channel capacity.

8. List any three advantages of digital transmission.

9. List the modulation techniques used in digital data transmission.

10. Give the principle of FDM.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.

(2) Each question carries **eight** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. *(a)* Derive all the mathematical expression for AM.

(OR)

(b) Explain the Vestigial Side Band (VSB) transmission.

12. *(a)* Explain the working principle of FM transmitter with AFC.

(OR)

(b) Explain the quantization process to obtain PCM signal.

13. *(a)* Explain resonant and non-resonant antennas.

(OR)

(b) Explain ground wave propagation.

14. *(a)* Explain SNR, noise figure, noise temperature and their importance.

(OR)

(b) Explain about error correction code ARQ in detail.

15. *(a)* Explain the working principle of TDM.

(OR)

(b) Explain the generating and demodulating methods of DSPK.

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) The question carries **ten** marks.

(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Analyze the SSB signal in which one of the two side bands is suppressed.

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