6235

BOARD DIPLOMA EXAMINATION, (C-16)

AUGUST/SEPTEMBER—2021

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 signal to noise ratio and noise figure.

2. Define the terms time domain and frequency domain signals.

3. State the need for DSB-SC modulation.

4. Give any three advantages of digital communication system over analog communication system.

5. Define overhead and efficiency of data communication system.

6. List any three disadvantages of ASK.

7. Define image frequency and IMRR in a radio receiver.

8. Give any three differences between low level and high level modulation.

9. State the need for multiplexing.

10. List different types of modems.

PART—B

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)* Define frequency modulation and derive its time domain equation.   7

(b) Define the modulation index of an FM signal.   3

12. *(a)* Derive the relation between total power and carrier power in AM.   6

(b) A 400 watt carrier is Amplitude modulated to a depth of 75 percent. Calculate the total power in the modulated wave.   4

13. *(a)* Draw and explain the basic elements of a communication system with a block diagram.   6

(b) State the need for modulation in communication systems.   4

14. *(a)* Explain the process of quantization with waveforms.   5

(b) Compare PAM, PWM and PPM.   5

15. *(a)* Explain CRC method of error detection with an example.   7

(b) Give any three advantages of CRC method of error detection.   3

16. *(a)* Draw and explain the block diagram of TRF receiver.   7

(b) List any two disadvantages of TRF receiver.   3

17. *(a)* Draw the block diagram of indirect FM transmitter using PLL method.   7

(b) List any two factors to be considered for choice of IF.   3

18. *(a)* Explain about Asynchronous Digital Subscriber Line (ADSL) modem.   6

(b) Compare time division multiplexing and frequency division multiplexing.   4

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