3236

BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2017

DECE—THIRD SEMESTER EXAMINATION

COMMUNICATION ENGINEERING

Time : 3 hours]   [*Total Marks* : 80

PART—A   3×10=30

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

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

(3) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define signal-to-noise ratio.

2. List the applications of SHF band of frequency spectrum.

3. Calculate the USB frequency if a carrier $20 \sin 6280t$ is amplitude modulated so that the lower sideband is at 465 Hz.

4. Define modulation index of FM signal.

5. List the advantages of pre-emphasis and de-emphasis.

6. Compare AM receiver with FM receiver.

7. Define sensitivity of a radio receiver.

8. Define image frequency in radio receivers.

9. Define 'maximum usable frequency'.

10. List the types of transmission line.

Instructions : (1) Answer *any* **five** questions.

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

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

11. *(a)* Distinguish between base band, carrier and modulated signals with waveforms. 5

(b) Describe the relation among channel bandwidth, base bandwidth and transmission time. 5

12. Describe time domain and frequency domain representation of signal with diagrams.

13. *(a)* Explain the method of producing SSBSC. 5

(b) List the advantages of SSBSC. 5

14. *(a)* Describe noise triangle in FM. 6

(b) List the merits of FM over AM. 4

15. *(a)* List the basic functions of a radio receiver. 4

(b) Describe the principle of heterodyning and super heterodyning in radio receivers. 6

16. *(a)* Distinguish between high-level modulation and low-level modulation. 5

(b) Draw the block diagram of high-level modulated AM transmitter. 5

17. Describe *(a)* reflection and *(b)* diffraction of EM waves.

18. Define polarization. Explain different types of polarization.

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