



C09-EC-304

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.

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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 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.
