



C09-EC-304

3236

**BOARD DIPLOMA EXAMINATION, (C-09)**  
**OCT/NOV—2016**  
**DECE—THIRD SEMESTER EXAMINATION**

COMMUNICATION ENGINEERING

Time : 3 hours ]

[ Total Marks : 80

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**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 the term 'noise'.
2. Define the term 'distortion'.
3. Define de-emphasis in FM.
4. Calculate the—
  - (a) bandwidth;
  - (b) LSB frequency;
  - (c) USB frequency;

if a carrier signal  $20 \sin 6280 t$  is amplitude modulated by a signal  $12 \sin 628 t$ .

5. Define modulation index of FM signal.
6. List the specifications of a radio transmitter.

- \* 7. Define image frequency rejection ratio in radio receivers.
- 8. Compare between AM and FM receivers.
- 9. Define reflection coefficient.
- 10. Define maximum usable frequency.

**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) With a neat block diagram, describe the basic elements of a communication system. 6
- (b) What is the significance of bandwidth in a communication system? 4
- 12. Classify various types of continuous wave modulation and sketch their waveforms. 10
- 13. (a) Explain the SSB-SC technique. 5
- (b) A 1200 watt carrier signal is amplitude modulated to a depth of 90 percent. Calculate—
- (i) total transmitted power;
- (ii) power in USB;
- (iii) total sideband power. 5
- \* 14. (a) Describe noise triangle in FM. 6
- (b) List the merits of FM over AM. 4
- 15. Draw a block diagram for heterodyne AM transmitter and briefly explain its operation. 10

- \* **16.** (a) List the basic functions of a radio receiver. 4  
(b) Describe the principle of heterodyning and super-heterodyning in radio receivers. 6
- 17.** Describe (a) refraction and (b) diffraction of EM waves. 10
- 18.** Explain ground wave propagation of EM waves. 10

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