C09–EC–**304**

3236

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2016

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) 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 trasmitter.

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.

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PART—B   10×5=50

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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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