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C09–EC–304

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BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2018

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 baseband, carrier and modulated signals.

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

3. Calculate the *(a)* bandwidth, *(b)* LSB frequency and *(c)* USB frequency, if a carrier signal 20 sin 6280 *t* is amplitude modulated by a signal 12 sin 628 *t*.

4. Define de-emphasis in FM.

5. List the merits of AM over FM.

6. Define image frequency rejection ratio in radio receivers.

7. Define sensitivity of a radio receiver.

8. List the advantages of FM receivers over AM receivers.

9. Define reflection coefficient.

10. Define horizontal polarization.

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. Explain *(a)* amplitude distortion and *(b)* frequency distortion.

12. Describe the effects of internal and external noises on a communication system.

13. *(a)* Describe the method of producing DSBSC. 5

(b) A 1000 watt carrier signal is amplitude modulated to a depth of 80 percent. Calculate the *(i)* total transmitted power, *(ii)* power in LSB and *(iii)* total sideband power. 5

14. Derive time domain equation for FM signal.

15. Draw the block diagram for heterodyne AM transmitter and briefly explain its operation.

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. Explain 'sky wave propagation' of EM waves.

18. Describe *(a)* reflection and *(b)* refraction of EM waves.

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