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C14–EC–304

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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2018

DECE—THIRD SEMESTER EXAMINATION

ANALOG COMMUNICATION

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. What is the need for modulation?

2. List the causes of distortion in transmission.

3. The peak amplitude of an AM signal varies from 2 V to 10 V. Determine the modulation index.

4. State the need for angle modulation.

5. What is the difference between low-level and high-level modulation?

6. Define selectivity of a radio receiver.

7. Define radiation pattern.

8. State the need for folded dipole.

9. Define the characteristic impedance of free space.

10. Define the term 'fading'.

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)* What is the need of frequency spectrum? 4

(b) Describe the frequency spectrums of VHF, UHF, SHF and EHF. 6

12. *(a)* Derive the time domain equation for an AM signal. 5

(b) Derive the expression for total power of an AM wave. 5

13. *(a)* Explain noise triangle in FM. 6

(b) Compare between AM and FM. 4

14. Draw the block diagram of basic SSB transmitter and explain the function of each block.

15. Draw the block diagram of FM receiver and explain the function of each block.

16. What is a half-wave dipole? Explain the formation of half-wave dipole and draw its radiation pattern.

17. Explain the operation of broadside array with radiation pattern.

18. *(a)* Explain reflection, refraction and diffraction of EM waves. 6

(b) Sketch different layers of ionosphere. 4

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