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C14–EC–304

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BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—2016

DECE—THIRD SEMESTER EXAMINATION

ANALOGUE 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 in communication system?

2. Define signal-to-noise ratio and noise figure.

3. Write any three comparisons between AM and FM.

4. An audio signal of 2 kHz is modulated by a carrier of 500 kHz to generate amplitude-modulated wave. Determine sideband frequencies and bandwidth.

5. Write any three differences between low-level and high-level modulators.

6. Define selectivity and fidelity of a radio receiver.

7. Define antenna gain and directivity.

8. List any three applications of dish antenna.

9. Define skip distance and virtual height of ionosphere.

10. Write a short note on properties of electromagnetic waves.

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. Mention the types of distortion in transmission and also explain the measures for distortionless transmission. 10

12. *(a)* Derive the expression for AM wave in time domain. 6

(b) Explain the need for DSB-SC and SSB modulations. 4

13. *(a)* Define pre-emphasis and de-emphasis and explain with circuit diagrams. 6

(b) A broadcast AM transmitter radiates 50 kW of carrier power. What will be the radiated power at 80% modulation? 4

14. Draw and explain the block diagram of indirect FM transmitter (Armstrong method).

15. *(a)* Explain the working of superheterodyne receiver with a block diagram. 7

(b) What is the need for AVC (AGC)? 3

16. *(a)* Explain about the operation of YAGI-UDA antenna and draw its radiation patterns. 8

(b) What is the need of antenna arrays? 2

17. *(a)* Define the following terms related to antennas : 4

(i) Directivity

(ii) Beam width

(b) Explain the working of log-periodic antenna with radiation pattern. 6

18. *(a)* Explain about sky-wave propagation. 6

(b) Explain about reflection and refraction of EM waves. 4

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