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C09–EC–304

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BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2014

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. State the need for modulation in communication system.

2. Classify various types of continuous modulation.

3. Define modulation index of AM signal.

4. What is meant by over modulation? What are its effects?

5. List the applications of AM in communication system.

6. What is the need of AVC?

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

8. Define the terms sensitivity and selectivity of a radio receiver.

9. What is meant by polarization?

10. List different types of radio wave propagation.

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)* Draw the block diagram of communication system and list the basic elements. 3+2=5

(b) Explain the different types of external noise. 5

12. *(a)* List the segments of the electromagnetic frequency spectrum.

(b) What is meant by distortion? Explain the different types of distortion?

13. *(a)* Derive the expression for total transmitted power of AM wave.

(b) Explain the process of time division multiplexing (TDM).

14. *(a)* Distinguish between amplitude modulation and angle modulation.

(b) Derive the time domain equation for an AM wave.

15. *(a)* Draw the block diagram of low-level modulation transmitter and explain its operation.

(b) With a neat block diagram, explain the operation of Armstrong FM transmitter.

16. *(a)* Draw the block diagram of superheterodyne receiver and explain its operation.

(b) With neat circuit diagram, explain the operation of Foster-Seeley discriminator.

17. *(a)* Define characteristic impedance of a transmission line.

(b) Explain horizontal and vertical polarization.

18. *(a)* Explain different layers of ionosphere.

(b) Explain the sky wave propagation of radio waves.

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