3236

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—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) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. List the applications of medium frequency (MF) band of frequency spectrum.

2. Define baseband, carrier and modulated signals.

3. Define modulation index of FM signal.

4. Define preemphasis in FM.

5. Define amplitude modulation.

6. Compare AM and FM receivers.

7. Define selectivity of a radio receiver.

8. Define image frequency in radio receivers.

9. Draw the electrical equivalent circuit of a transmission line and list primary constants.

10. Define critical frequency and maximum useable frequency.

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. Describe time domain and frequency domain representation of signal with diagrams.

12. Explain different types of internal and external noise.

13. *(a)* Describe time division multiplexing. 5

(b) Write the time domain equation for AM signal and give the reasons for over-modulation and measure to avoid it. 5

14. *(a)* List the advantages of SSBSC. 5

(b) A 1000 watts RF signal is amplitude modulated to transmit 1400 watts. Calculate *(i)* modulation index, *(ii)* upper sideband power and *(iii)* total sideband power. 5

15. Draw 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 space wave propagation of EM waves.

18. *(a)* Describe *(i)* refraction and *(ii)* diffraction of EM waves. 5

(b) Sketch different layers of ionospher. 5

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