



C14-EC-304

4240

BOARD DIPLOMA EXAMINATION, (C-14)
OCT/NOV—2017
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. Define modulation and list various types of modulation.
2. Classify different types of noise.
3. Define modulation index of an AM signal.
4. List any three merits of FM over AM.
5. Define image frequency rejection ratio in radio receivers.
6. What is the need for AVC (AGC) in radio receivers?
7. Define isotropic antenna.

- * 8. State the need of antenna array.
9. Define polarization of EM waves.
10. Define skip distance and virtual height in sky 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. Describe the basic elements of a communication system with block diagram.

12. (a) State the need for DSB-SC modulation. 4

(b) An AM signal is represented in time domain as,

$$S(t) = 20[1 + 0.9 \cos 2 \times 10^4 t] \cos 2 \times 10^6 t$$

and the signal is radiated into the free space, with antenna resistance $R = 5 \Omega$. Calculate (i) band width, (ii) modulation efficiency and (iii) total power. 6

13. (a) Explain vestigial side band modulation and sketch the spectrum of VSB modulated wave. 2

(b) List the applications of VSB modulation. 2

* 14. Draw the block diagram of indirect FM transmitter and explain its operation.

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

- * **16.** Explain the following terms related to antenna :
- (a) Power gain
 - (b) Directivity
 - (c) Beam width
 - (d) Radiation resistance
 - (e) Front to back ratio
- 17.** Explain the working of Yagi-Uda antenna with radiation pattern.
- 18.** Explain space wave propagation of EM waves.
