Code No. : 20460 E   Sub. Code : CEPH 52

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

Fifth Semester

Physics – Core

Major Elective — COMMUNICATION ELECTRONICS

(For those who joined in July 2021 – 2022)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The maixmum transmission efficiency of an AM signal is

   (a) 64.4%   (b) 33.33%

   (c) 56.66%   (d) 75.55%

2. In AM modulation if $E_{min} = 40\,V$ and $E_{max} = 60\,V$, the percentage of modulation is

   (a) 20%   (b) 40%

   (c) 50%   (d) 1

3. AVC stands for

   (a) Audio Voltage Control

   (b) Abrupt Voltage Control

   (c) Automatic Volume Control

   (d) Automatic Voltage Control

4. The super heterodyne principle provides selectivity at ———— stage.

   (a) RF   (b) IF

   (c) Audio   (d) Before RF

5. FM spectrum has

   (a) two side bands

   (b) three side bands

   (c) no side bands

   (d) infinite number of side bands

6. The total power after modulation depends on modulation index in

   (a) AM   (b) FM

   (c) PM   (d) All the above

7. Noise suppression in FM is possible with the use of

   (a) discriminator   (b) frequency change

   (c) superhaterodyne   (d) all the above

8. Which one is amplitude - limiting circuit?

   (a) Balanced modulator

   (b) Foster – Seely detector

   (c) Ratio detector

   (d) All the above

9. The process of assessing binary values to each sample is

   (a) quantization   (b) sampling

   (c) encoding   (d) decoding

10. BFSK can be implemented using

    (a) voltage controlled oscillator

    (b) low pans filter

    (c) bank pass filter

    (d) differential amplifier

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write a short note on : signal to noise ratio (SNR).

    Or

    (b) Write a short note on : Efficiency of AM.

12. (a) List out the uses and applications of QAM.

    Or

    (b) Compare the various AM system.

13. (a) State the advantages of FM.

    Or

    (b) Compare : AM and FM.

14. (a) List out the advantages and disadvantages of Foster – Seely discriminator.

    Or

    (b) Compare : Foster – Seely discriminator and Ratio detector.

15. (a) Explain the term : Line coding and Line decoding.

    Or

    (b) Write a short note on : Digital transmission and Amplitude shift keying.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Discuss Double Side Band – Suppressed Carrier – Amplitude Modulation.

Or

(b) Describe the working and advantages of medium level AM modulator.

17. (a) Discuss the block diagram, functions and advantages of a super heterodyne ratio receiver.

Or

(b) Describe the working of tracking in super heterodyne receiver.

18. (a) Explain : FM transmitter.

Or

(b) Compare : AM and FM.

19. (a) Define : Discriminator. Describe the working, advantages and limitations of Faster – Seely discriminator.

Or

(b) Explain the functions of :

(i) limiter

(ii) discriminator.

20. (a) Write a short notes on :
(i) Broadband transmission
(ii) Line coding and Line decoding.

Or

(b) Write a short notes on :
(i) Phase Shift Keying
(ii) Binary Phase Shift Keying.

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