

(6 pages)

No. :

Code No. : 20054 E Sub. Code : CEPH 52

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2025.

Fifth Semester

Physics

Major Elective – COMMUNICATION ELECTRONICS

(For those who joined in July 2021 and 2022 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The modulation index of an AM wave is changed from 0 to 1. The transmitted power is
(a) Unchanged
(b) Doubled
(c) Halved
(d) Increased by 50%

2. In AM modulation if $E_{\min} = 40V$ and $E_{\max} = 60V$, the percentage of modulation is
(a) 20% (b) 40%
(c) 50% (d) 1
3. In super heterodyne receiver the input at mixer stage is _____
(a) IF and RF
(b) RF and AF
(c) IF and AF
(d) RF and local oscillator signal
4. In TV transmission picture signal is _____ modulated
(a) frequency (b) phase
(c) amplitude (d) none of the above
5. FM spectrum has
(a) Two side bands
(b) Three side bands
(c) No side bands
(d) Infinite number of side bands

6. Carson's rule is
 (a) AM bandwidth (b) FM bandwidth
 (c) PM bandwidth (d) All bandwidths
7. If for FM transmission and reception is
 (a) 10.7 KHz (b) 10.7 MHz
 (c) 455 KHz (d) 455 MHz
8. Foster seely discriminator is
 (a) AM detector (b) FM detector
 (c) Phase stabilizer (d) None
9. Phase shift keying is
 (a) linear modulation
 (b) Non-linear modulation
 (c) Complex modulation
 (d) None
10. The first step in pulse code modulation is
 (a) A/D conversion (b) D/A conversion
 (c) Quantization (d) Sampling

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) State the advantages and disadvantages of SSB-SC-AM.
 Or
 (b) Write a short note on signal to noise ratio (SNR).
12. (a) Compare the various AM system.
 Or
 (b) State the characteristics of a receiver.
13. (a) Write a short note on frequency modulation.
 Or
 (b) Write the similarity and difference of FM and PM.
14. (a) Compare Foster-seely discriminator and Ratio detector.
 Or
 (b) Explain the principle of FM detectors. State the characteristics of frequency modulation.

15. (a) Explain the term : Pulse code modulation.

Or

(b) Write a short note on FSK and binary ASK.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

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

Or

(b) Discuss the transmission of AM transmitter.

17. (a) Write a short note on :

(i) Envelope demodulator

(ii) Tuned Ratio Frequency Receiver (TRF).

Or

(b) Discuss the characteristics and advantages of a radio receiver.

18. (a) Compare : AM and FM.

Or

(b) Describe the principle, working of commercial broad cost FM.

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19. (a) Define discriminator . Describe the working, advantages and limitations of foster-seely discriminator.

Or

(b) Describe the principle, working of FM superheterodyne receiver.

20. (a) Discuss the basic concepts of digital communication.

Or

(b) Define digital modulation. Explain the stages of A/D conversion of digital data.

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