

(6 pages)

Reg. No. :

Code No. : 20315 E Sub. Code : CEPH 52

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 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. In an AM wave, useful power is carried by
 - (a) carrier wave
 - (b) side bands
 - (c) both (a) and (b)
 - (d) none of the above
2. Emitter modulator amplifier for amplitude modulation
 - (a) operates in Class A mode
 - (b) a low frequency
 - (c) output power is small
 - (d) all the above
3. Demodulation is done in _____.
 - (a) receiving antenna
 - (b) transmitter
 - (c) radio receiver
 - (d) transmitting antenna
4. In TV transmission, picture signal is _____ modulated.
 - (a) frequency
 - (b) phase
 - (c) amplitude
 - (d) none of the above
5. In AM, the modulation index is
 - (a) f_d / f_m
 - (b) f_m / f_d
 - (c) $(f_c - f_m) / f_m$
 - (d) $f_m / (f_c - f_m)$
6. FM broadcast range is
 - (a) 88 KHz
 - (b) 108 KHz
 - (c) 88 MHz
 - (d) 108 MHz
7. Balanced slope detector is
 - (a) an AM booster
 - (b) an AM detector
 - (c) an FM detector
 - (d) FM limiter

8. Foster seely discriminator is
 (a) AM detector (b) FM detector
 (c) Phase stabilizer (d) None of the above
9. Most commonly used digital modulation scheme is
 (a) ASK (b) BFSK
 (c) BPSK (d) DPSK
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 by choosing (a) or (b).
 Each answer should not exceed 250 words.

11. (a) Explain the functions of transmitter and receiver in communication system.
 Or
 (b) The power of carrier wave is 1 KW. What is the signal power required to modulate it 100%?

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12. (a) Explain the term : Quadrature Amplitude Modulation (QAM).

Or

- (b) State the characteristics of a receiver.

13. (a) Write a short note on : Frequency Modulation.

Or

- (b) Write a short note on : Phase Modulation.

14. (a) Explain the principle of FM detectors. Explain the characteristics of frequency demodulation.

Or

- (b) Explain the working and disadvantages of balanced slope FM detector.

15. (a) Write a short note on digital communication.

Or

- (b) Explain the term : Pulse Code Modulation.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions by choosing (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe the elements of a Communication System.

Or

- (b) Discuss the expression and advantages of low level AM modulator.

17. (a) Describe the various parts of AM receiver using a block diagram.

Or

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

18. (a) Define : Frequency modulation. State modulation index and advantages of frequency modulation.

Or

- (b) Discuss Armstrong Method for FM transmitter.

19. (a) Discuss the principle and working of a balanced slope detector.

Or

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

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

Or

- (b) Describe the digital modulation of PCM.
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