

(6 pages)

Reg. No. :

Code No. : 30471 E Sub. Code : CEPH 52

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2024.

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. The ratio of modulating power to the total power at 100% modulation in AM is
- (a) 1:3 (b) 1:2
- (c) 2:3 (d) None of the above
3. In superheterodyne 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. The intermediate frequency in a standard AM receiver is
- (a) 455 Hz (b) 455 KHz
- (c) 4.55 MHz (d) None of the above
5. The output of PM receiver is proportional to
- (a) center frequency (b) the phase deviation
- (c) carrier amplitude (d) none of the above
6. Carson's rule is for
- (a) AM bandwidth (b) FM bandwidth
- (c) PM bandwidth (d) All bandwidths

7. The IF for FM transmission and reception is

- (a) 10.7 KHz (b) 10.7 MHz
- (c) 455 KHz (d) 455 MHz

8. Noises in ratio receivers are

- (a) high frequency sound
- (b) low frequency sound
- (c) sudden bursting of speaker coils
- (d) spurious voltages

9. Phase shift keying is

- (a) Linear modulation
- (b) Non-linear modulation
- (c) Complex modulation
- (d) None of the above

10. In quadrature PSK scheme. How many PSK systems are used?

- (a) one (b) two
- (c) three (d) four

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Explain the term : amplitude modulation.

Or

(b) State the advantages and disadvantages of SSB – SC – AM.

12. (a) Write a short note on : Envelope detector.

Or

(b) Explain the construction, principle of AM detector.

13. (a) Explain the term : FM transmitter.

Or

(b) Write the similarity and difference of FM and PM.

14. (a) Explain the operation of ratio detector.

Or

(b) List out the advantages of super heterodyne receivers.

15. (a) Write a short note on : digital 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) Discuss singleside band – suppressed carrier
– amplitude modulation (SSB-SC-AM).

Or

- (b) Discuss the transmission of AM transmitter.

17. (a) Write a short note on :

- (i) Envelope demodulator
(ii) Tuned radio frequency (TRF) receiver.

Or

- (b) Describe the principle, working of double
frequency conversion AM receiver.

18. (a) Describe the principle, working of reactance
tube modulator.

Or

- (b) Describe the principle, working of commercial
broadcast FM.

19. (a) Describe the operation of ratio detector
circuit.

Or

- (b) Discuss the working of FMFB.

20. (a) Define : Digital modulation. Explain the
stages of A/D conversion of digital data.

Or

- (b) Explain the block diagram of DPSK.