

(6 pages)

Reg. No. :

**Code No. : 40327 E Sub. Code : JMPH 5 C/
SEPH 5 C**

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2019.

Fifth Semester

Physics — Main

Major Elective — II — COMMUNICATION
ELECTRONICS

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

SECTION A — ($10 \times 1 = 10$ marks)

Answer ALL questions.

Choose the correct answer.

1. In an AM wave useful power is carrier by _____.

(a) carrier
(b) sidebands
(c) both (a) and (b)
(d) none of these

2. If modulation is 100% then signal amplitude is _____ carrier amplitude.

(a) equal to (b) greater than
(c) less than (d) none of these

3. Most of the amplification in a superhetrodyne receiver occurs at _____.

(a) IF (b) RF amplifier
(c) Audio amplifier (d) Detector

4. Signal voltage induced in the aerial of a radio receiver is the order of _____.

(a) mV (b) μV
(c) V (d) None of the above

5. The modulation index of a wideband FM system is _____.

(a) > 1 (b) < 1
(c) $= 1$ (d) None of these

6. What is the maximum modulating frequency allowed in commercial FM broad castings?

(a) 40 KHz (b) 75 KHz
(c) 15 KHz (d) 120 KHz

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7. The PM signal produced by an FM circuit is called
(a) Direct PM (b) Indirect PM
(c) Direct FM (d) Indirect FM
8. The major advantage of FM over AM is _____.
(a) Reception is less noisy
(b) Smaller bandwidth
(c) Smaller frequency deviation
(d) None of these
9. Frequency shift keying is used mostly in
(a) Telephony
(b) Telegraphy
(c) Radio transmission
(d) None of these
10. Which of the following gives maximum probability of error?
(a) ASK (b) BFSK
(c) BPSK (d) DPSK

SECTION B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Explain the working of a high level AM transmitter.
Or
(b) Explain the working of a broadcast AM transmitter.
12. (a) Explain the quadrature amplitude modulation.
Or
(b) Explain the principles of AM detection.
13. (a) Explain with diagrams the generation of FM using direct method.
Or
(b) Explain the comparison of AM and FM.
14. (a) Explain the phasor representation of Foster's discriminator.
Or
(b) Write short notes on FM noise suppression.



15. (a) Explain the principles of FSK transmitter and receiver.

Or

- (b) Write short notes on the quadrature PSK.

SECTION C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the detection of AM signals using envelope detector.

Or

- (b) Explain the working of double side band suppressed carrier amplitude modulation.

17. (a) Explain the working of tuned radio frequency receiver.

Or

- (b) Explain the double frequency conversion AM receiver.

18. (a) Explain phase deviation and modulation index with suitable example.

Or

- (b) Explain the phasor representation of an FM and PM.

19. (a) Explain with block diagram of FM superheterodyne receiver.

Or

- (b) Explain the threshold extension by FMFB technique.

20. (a) Explain the various types of digital modulation technique.

Or

- (b) Describe with neat diagram the operation of BFSK modulator.

