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Name.....

Reg. No.....

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2014

(UG-CCSS)

Complementary Course—Electronics

EL 3C 03—COMMUNICATION SYSTEMS

Time : Three Hours

Maximum : 30 Weightage

Part A

Answer all questions.

Each carries a weightage of 1/4.

1. In a communication system, noise is most likely to affect the signal :

(a) At the transmitter.	(b) In the channel.
(c) At the receiver.	(d) None of these.
2. Intensity of a sound wave is directly proportional to the square of its _____.
3. The most commonly used filters in SSB generation are _____.
4. Demodulation is :

(a) Done at transmitter.	(b) Rectification of modulated signal.
(c) Removal of side bands.	(d) The reverse of modulation.
5. In FM the side bands are _____ around the carrier.
6. The most common modulation system used for telegraphy is _____.
7. Quantizing noise occurs in _____.
8. The Shannon Hartley law :

(a) Refers to distortion.	(b) Refers to noise.
(c) Define bandwidth.	(d) Refers to signal rates.
9. The no. of sidebands in a FM transmission is theoretically :

(a) Infinity.	(b) Zero.
(c) 6.	(d) 3.
10. The image frequency of a superheterodyne receiver is :

(a) Created in the receiver.	(b) Independent of the tuned receiver frequency.
(c) Not rejected by the IF tuned circuit.	(d) None of these.

Turn over

11. High frequency waves are :
- | | |
|---------------------------------------|----------------------------------|
| (a) Absorbed by F ₂ layer. | (b) Reflected by D layer. |
| (c) Affected by solar cycle. | (d) Not affected by solar cycle. |
12. When electromagnetic waves travels in free space ——— takes place.
- | | |
|-----------------|------------------|
| (a) Absorption. | (b) Attenuation. |
| (c) Reflection. | (d) Refraction. |

(12 × ¼ = 3 weightage)

Part B

Answer all questions.

Each question carries 1 weightage.

13. What is modulation ? Why is it required?
14. What is demodulation ?
15. What is noise in FM ?
16. State sampling theorem.
17. What is meant by frequency shift keying ?
18. How is SSSB generation achieved ?
19. What is the AGC in a receiver ? How is it achieved ?
20. What are the advantages of superheterodyne receiver over a TRF receiver ?
21. What is ground wave propagation ?

(9 × 1 = 9 weightage)

Part C

Answer any five questions.

Each question carries 2 weightage.

22. Define amplitude modulation and modulation index. A modulated carrier wave has a maximum amplitude of 400 mv and minimum amplitude of 200 mv. What is percentage modulation ?
23. Draw the block diagram of an SSB transmitter and explain.
24. Quote the Shannon Hartley Theorem. What is its importance ?
25. What is Companding ? Why is it used ?
26. Distinguish between Pre emphasis and De emphasis.
27. Explain frequency division multiplexing.

Part D

*Answer any two questions
Each question carries 4 weightage.*

29. Describe the super heterodyne receiver using block diagram.
30. With the help of block diagram, explain the working of FM transmitter.
31. Explain pulse width modulation. Describe how generation and demodulation of pulse width modulation is done.

(2 × 4 = 8 weightage)

