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SARDAR PATEL UNIVERSITY V.V.NAGAR

B.Sc.(IIIrd SEM.) ELECTRONICSThursday, 16th JUNE-2022 (NC) EXAMINATION

SUBJECT- ANALOGUE COMMUNICATION

SUB.CODE-US03CELC02



MARKS-70

TIME: 12:00 pm to 02:00 pm

[10]

Q-1 Choose correct answer.

1. The height of the Ionosphere above the surface of earth is _____.
 (A) 5-10 km (C) 800-1000 km
 (B) 110-220 km (D) None of above
2. Full form of AGC is _____.
 (A) automatic gain control (C) average gain control
 (B) average gang capacitor (D) None of above
3. _____ is not the method of frequency modulation.
 (A) Reactance tube (C) Armstrong method
 (B) Varactor diode (D) None of above
4. Which modulation process is used for high quality audio communication?
 (A) amplitude modulation (C) frequency modulation
 (B) phase modulation (D) None of above
5. The arrangement consisting two electric poles is known as _____.
 (A) mono pole (C) dipole
 (B) array (D) None of above
6. The barrier potential of the germanium diode is _____.
 (A) 700 mV (C) 300 mV
 (B) 1.0 V (D) None of above
7. Which of frequency is known as UHF?
 (A) 3-30 MHz (C) 3-30 KHz
 (B) 30-300 MHz (D) None of above
8. Which Portion of characteristics curve is utilized by square law diode modulator circuit?
 (A) Linear (C) Inverse
 (B) Non-linear (D) None of above
9. IF stands for _____.
 (A) Intermediate frequency (C) Independent frequency
 (B) Indefinite frequency (D) None of above
10. Broadcast television service in India operates in _____ band of frequencies.
 (A) VHF and UHF (C) Medium wave
 (B) Short wave (D) All of above

Q-2 Filling the blank and true/false.

[08]

- 1 Height of the transmitting antenna depends on _____.
- 2 The frequency of the carrier signal is normally kept _____.
- 3 _____ is travel along surface of earth.
- 4 Varactor diode operates in _____ bias condition.

True/ False

- 5 The frequency of second harmonic of the ac signal with frequency $f_x = 1/2f_x$
- 6 Ground wave is not the type of radio wave.
- 7 Demodulation process is carried out by Receiver.
- 8 Local Oscillator section is part of Receiver.

Q-3 Short answer type question. (any ten)

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1. Differentiate between FM and AM.
2. What is demodulation? Briefly explain
3. Define modulation process.
4. What do you mean by linear diode detector?
5. State different demodulation methods.
6. What do you mean by square law diode detector?
7. State classifications of modulation methods.
8. Define modulating and carrier signal.
9. What do you mean by linear diode detector?
10. List the method of frequency modulation.
11. State different types of radio wave propagation.
12. Define modulation index.

Q-4 Answer the following.(attempt any four)

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- 1 Derive the expression for the amplitude modulated voltage with necessary diagram.
- 2 Derive the expression for the frequency modulated voltage with necessary diagram.
- 3 Discuss the circuit diagram of linear diode detector with choice of RC time constant.
- 4 Explain square law diode modulation and square law diode demodulation circuit.
- 5 Draw the circuit diagram of the frequency modulation using a varactor diode and explain it.
- 6 Discuss method of frequency modulation using reactance tube method.
- 7 Describe in detail concept of surface wave propagation with diagram.
- 8 Write a note on space wave propagation with necessary diagram.

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