[14/A-10] SEAT No._____ No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY

B.Sc.(III[rd] SEM.) INSTRUMENTATION (V)

Saturday, 1[st] DECEMBER-2018 EXAMINATION

SUBJECT- ANALOGE COMMUNICATION (US03CELC02)

TIME: 2:00 pm to 5:00 pm **MARKS-70**

Q-1 **Choose correct answer.** [10]

1. Height of the transmitting antenna depends on ____.
   (A) transmitted power (C) modulation signal frequency
   (B) carrier signal frequency (D) none of above
2. The frequency of the carrier signal is normally kept_____.
   (A) zero (C) high
   (B) low (D) none of above
3. Full form of AGC is _____.
   (A) automatic gain control (C) average gain control
   (B) average gang capacitor (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. Varactor diode operates in _____ bias condition.
   (A) reverse (C) zero
   (B) forward (D) none of above
7. Which of frequency is known as UHF?
   (A) 3-30 Hz (C) 30-300 KHz
   (B) 30-300 MHz (D) none of above
8. The frequency of second harmonic of the ac signal with frequency fx is
   (A) 1/2fx (C) 1/fx
   (B) 4fx (D) none of above
9. Which Portion of characteristics curve is utilized by square law diode modulator circuit?
   (A) Linear (C) Inverse
   (B) Non-linear (D) none of above
10. The barrier potential of the germanium diode is ____.
    (A) 700 Mv (C) 300 mV
    (B) 1.0 V (D) none of above

Q-2 **Short answer type question. (any ten)** [20]

1. Define modulating and carrier signal.
2. Define modulation index.
3. State classifications of modulation methods.
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. Define modulation process.
8. Differentiate between FM and AM.
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. What is demodulation? Explain how demodulation process is carried out in radio receiver.

P.T.O

Q.3(A)	Derive the expression for the amplitude modulated voltage with necessary diagram.	[07]
Q.3(B)	Briefly discuss need of modulation in communication.	[03]

OR

Q.3(A)	Derive the expression for the frequency modulated voltage with necessary diagram.	[07]
Q.3(B)	Briefly discuss need of demodulation in receiver.	[03]
Q.4	Discuss the circuit diagram of linear diode detector with choice of RC time constant.	[10]

OR

Q.4	Explain square law diode modulation and square law diode demodulation circuit.	[10]
Q.5(A)	Draw the circuit diagram of the frequency modulation using a varactor diode and explain it.	[05]
Q.5(B)	Describe reactance tube modulation method with necessary diagram.	[05]

OR

Q.5	Discuss method of frequency modulation and draw the circuit of R-C capacitive reactance FET and describe it.	[10]
Q.6	Write a note on space wave propagation with necessary diagram.	[10]

OR

Q.6	Describe in detail concept of surface wave propagation with diagram.	[10]

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