SEAT No. _____ No. of Printed Pages: 2

[98]

SARDER PATEL UNIVERSITY. V.V. NAGER.

S.YB.Sc. Sem-IIIEXAMINATION, ELECTRONICS DEVICES

SUB. CODE:-US03CELE21

DATE:-31/12/2020 TIME:- 2:00PM to 4:00PM MARKS-70

Q-1 Choose correct answer [10]

1.. Esaki diode is other name of _____
(A) Tunnel diode (C) BJT
(B) FET (D) None of these

2. In very heavily doped n type semiconductor conduction band is _____filled.
(A)Completely (C)Little
(B) Empty (D) None of these

3. In Wire Wound resistor winding is _____
(A) Anti-Clock wise (C) Both
(B) Clockwise (D) None of these

4. Cermet resistors are made from glass and _____
(A) Metal (C) Gold
(B) Carbon (D) None of these

5. There are two types of resistors variable and _____
(A)Fixed (C) Zero
(B) Not Constant (D) None of these

6. Diode clamper circuit is used in _____
(A) Amplifier (C)Radio
(B) TV (D) None of these

7. In amplitude modulation _____of carrier signal is varied as per audio signal.
(A) Amplitude (C) Phase
(B) Frequency (D) None of these

8. Full wave rectifier circuit is used in _____
(A)Calculator (C) Sensing machines
(B) DC Power supply (D) None of these

9. Pure Semiconductor material is called as _____material.
(A) Extrinsic (C) Insulator
(B) Intrinsic (D) None of these

10. The barrier potential is negative on P-side and _____on N-side in PN Junction diode
(A) Zero (C) Negative
(B) Positive (D) None of these

Q.2 Fill in the Blanks & True or False **(08)**

[a] Fill in the blanks. (04)

1) The process of recovering the modulating signal from modulated carrier signal is called _____.
2) Donor Doped Semiconductor material is known as _____semiconductor.
3) The depletion region in tunnel diode is _____
4) Thermistor is a _____ resistance device.

[b] Answer True or False (04)

1) Tantalium capacitor is a similar to electrolytic capacitor in polarity.
2) Doping profile in Hyper-abrupt junction diode and abrupt junction diode is same.
3) Square law Diode modulator uses linear portion of the diode characteristics.
4) The time constant for step response of RC circuit is given by T=RC.

Q-3 **Short answer type question. (any ten)** [20]

1. Define amplitude modulation.
2. Draw the basic circuit of Linear Diode Detector.
3. Define Modulation Index.
4. Draw the diagram of Abrupt Junction VVC diode.
5. Draw the diagram of Hyper-Abrupt Junction VVC diode.
6. Draw the diagram showing principle of voltage variable capacitor diode.
7. Write a note on P-type semi-conductor .
8. Write a note on N-type semi-conductor.
9. Draw the diagram of wire wound reisistor.
10. Give full form of CCD.
11. Draw a neat circuit of full wave rectifier using two diodes.
12. Define amplitude demodulation.

Q.4 **Answer any four out of eight question** 32

Q.(a) Give an account of step response of RL circuit. [8]

Q.(b) Explain working of Forward-Biased and Reverse-Biased PN Junction Diode in detail. [8]

Q.(c) Explain any two in detail [8]
(1) Peak Rectifier
(2) Voltage Doubler
(3) Diode Clamper
(4) Diode Limiter

Q.(d) List different types of fixed resistors and explain any two in detail. [8]

Q.(e) List different type of Fixed Capacitors and explain any two in detail. [8]

Q.(f) Write a note on voltage variable capacitor diode. [8]

Q.(g) Write a note on thermistor and draw circuit of its one application. [8]

Q.(h) Give an account of Amplitude Modulation. [8]

X