

SEAT No. _____

[49]



SARDAR PATEL UNIVERSITY

B.Sc. (3rd Semester) Examination

Electronics

US03CELE21- Electronics Devices

No. of Printed Pages: 2

Date :- 13/6/2022
Day :- Monday

Time :- 12:00pm to 2:00pm
Total Marks :- 70

Q1. Multiple Choice Questions .

[10]

1. The reactance of an inductor is given as _____.
(a) $2\pi fL$ (b) $1/2\pi fL$ (c) $2\pi fC$
2. The most common variable capacitor is the _____ capacitor.
(a) Mica (b) Air -Gang (c) Electrolytic
3. The relative size of all fixed resistors change with the _____ rating.
(a) Wattage (b) Voltage (c) Current
4. The width of depletion region is dependent on the _____ density.
(a) Current (b) Doping (c) Charge
5. The barrier potential assists the flow of _____ carriers across the junction.
(a) Majority (b) Positively charged (c) Minority
6. Pure semiconductor material is known as _____.
(a) Intrinsic (b) Extrinsic (c) resistance
7. The process of recovering the _____ wave from the carrier is called detection.
(a) Modulating (b) Sinusoidal (c) High frequency
8. The _____ circuit converts alternating quantity to unidirectional quantity.
(a) Rectifier (b) Inverter (c) Clamper
9. In charge couple device all the metal electrodes are maintained at the same fixed _____ voltage.
(a) Positive (b) Zero (c) Negative
10. The Thermistor are widely used for _____ compensation.
(a) Resistance (b) Temperature (c) Voltage

Q2. State whether the following statements are True or False.

[08]

1. There are two types of resistors variable and fixed. True/False
2. Cermet resistors are made from glass and carbon. True/False
3. Full wave rectifier circuits is used in DC power supply. True/False
4. The barrier potential is negative on P-side and positive on N - side in PN Junction diode. True/False
5. In amplitude modulation amplitude of carrier signal is as per audio signal. True/False
6. Diode clamper circuit is used TV. True/False

7. Esaki diode is other name of tunnel diode. True/False
8. Diagonal clipping occurs when the time constant RC is excessively large . True/False

Q3. Short Questions [Attempt any Ten]

[20]

1. Explain briefly the variable resistor.
2. Write a note on system of colour coding in resistors.
3. What is capacitor? State the uses of capacitor.
4. Write a note on P- type semi- conductor.
5. Write a note on N- type semi- conductor.
6. Draw the figure of an unbiased PN junction.
7. Draw the circuit of voltage doubler and briefly explain its working.
8. Define Modulation index.
9. Define amplitude demodulation.
10. What is a voltage variable capacitor diode?
11. What is charge coupled device?
12. Draw the basic circuit of linear diode detector .

Q4. Long Answer Questions [Attempt any four]

- I. List different types of fixed capacitors and explain any two in detail. [08]
- II. What is an Inductor ? Discuss the different types of inductors. [08]
- III. Give an account of step response of RL circuit. [08]
- IV. Explain in detail the reverse biased PN junction. [08]
- V. Give an account of Amplitude Modulation. [08]
- VI. Explain in detail (1) Peak Rectifier, [08]
(2) Diode Clamper.
- VII. Explain in detail the voltage variable capacitor diode. [08]
- VIII. Explain the working of a forward biased tunnel diode. [08]

————— > —————