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SARDER PATEL UNIVERSITY. V.V. NAGER.

S.YB.Sc. Sem-III ELECTRONICS EXAMINATION,(NC)

SUB. CODE:-US03CELE01

Electronics Devices

DATE:-4/01/2021

TIME:-2:00PM to 4:00PM

MARKS-70

Q-1 Choose correct answer

[10]

- 1.. Reactance of inductor is given by $X_L =$ _____.
 (A) $2\pi fL$ (C) $2fL$
 (B) $1/2\pi fL$ (D) None of these.
2. Reactance of capacitor is given by $X_C =$ _____.
 (A) $2\pi fCL$ (C) $2fC$
 (B) $1/2\pi fC$ (D) None of these
3. The output of a voltage multiplier is _____ volt .
 (A) DC (C) AC-DC
 (B) ac (D) None of these
4. Pure semiconductor material is referred as _____ material.
 (A) intrinsic. (C) extrinsic
 (B) doped . (D) None of these
5. Donor doped semiconductor material is referred as _____ material.
 (A) intrinsic (C) extrinsic
 (B) un-doped (D) None of these
6. Acceptor doped material is known as _____ semiconductor.
 (A) N-TYPE (C) P-TYPE
 (B) ZERO-TYPE (D) None of these
7. Tunnel diode is also known as _____ diode.
 (A) Esaki (C) Cut-off
 (B) BLANKING (D) None of these
8. Thermistor resistance is changing due to change in _____.
 (A) temperature. (C) wind
 (B) AIR (D) None of these
9. In amplitude modulation, the frequency of carrier is _____ as per modulating signal.
 (A) decreases (C) constant
 (B) increases (D) None of these
10. Square-law diode modulator uses _____ portion of the characteristic .
 (A) linear (C) linear- non- linear
 (B) non- linear (D) None of these

Q.2 Fill in the Blanks & True or False

[08]

[a] Fill in the blanks.

[04]

- 1) In mica capacitor _____ is dielectric.
- 2) When PN-junction diode is reversed biased depletion region is _____.
- 3) In voltage doubler _____ no of diodes are used.
- 4) In application of voltage variable capacitor, VVC diode is _____ biased.

[b] Answer True or False

[04]

- 1) Rectifier converts ac voltage to DC voltage.
- 2) In step response of RL-circuit DC voltage is used.
- 3) In application of voltage variable capacitor, VVC diode is reverse biased.
- 4) The value of resistance is not changing in fixed resistors

[4]

[P.T.O.]

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

1. Write a note on cermet resistor.
2. Write a note on surface mount resistor.
3. List different types of fixed inductors.
4. Write a note on N-type semiconductor
5. Define modulation index.
6. Write a note on P-type semiconductor.
7. Draw the basic circuit of linear diode detector.
8. Draw the diagram of principle of voltage variable capacitor diode.
9. Draw the diagram of hyper-abrupt junction VVC.
10. Draw the output arrangement of CCD.
11. Define amplitude modulation drawing waveform.
12. Explain temperature effects on reverse bias PN junction diode.

Q.4 Answer any four out of eight question 32

- Q.(a) List different types of fixed resistor and explain any two in detail. [8]
- Q.(b) List different types of fixed capacitor and explain any one in detail, what is trimmer capacitor [8]
- Q.(c) Give an account of step voltage response of RL circuit. [8]
- Q.(d) Give an account of forward bias PN junction diode ,what is temperature effect in reverse biased PN junction diode. [8]
- Q.(e) Give an account of amplitude modulation and derive necessary derivations. [8]
- Q.(f) Explain working of voltage multiplier&peak rectifier. [8]
- Q.(g) Write a note on voltage variable capacitor diode. [8]
- Q.(h) Give input and output arrangement of CCD. . [8]

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[22]