

QUIZ – ANSWER KEY

QUIZ NO: 100

TOPIC: ELECTRICAL ENGINEERING

DATE: 18/08/2022

1. In the equilibrium state, the barrier potential across a unbiased silicon diode is ?

- [A] 0.3 V
- [B] 0.7 V
- [C] 1.3 V
- [D] 0 V

Answer: B

Explanation:-

- Barrier potential is due to the charges that establish an electric field across the two junctions.

2. In case of a practical p-n junction diode, the rise in the junction temperature ?

- [A] Decreases the width of the depletion region
- [B] Increases the barrier potential
- [C] Increases the width of the depletion region
- [D] Width of the depletion region increases but the barrier potential remains constant

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Answer: A

Explanation:-

The rise in temperature excites the charges, which go & recombine with the charges in the depletion region decreasing its width. Higher the temperature, lesser is the E.M.F required to turn on the device.

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3. Even after the forward current reduces to zero value, a practical diode continues to conduct in the reverse direction for a while due to the ?

- [A] Resistance of the diode
- [B] High junction temperature
- [C] Stored charges in the depletion region
- [D] None of the mentioned

Answer: C

Explanation:-

- Due to the stored charges during the earlier current flow, even when the current reduces to zero due to some structural properties of the device, the device takes time to sweep out the stored charges.

4. The power loss in which of the following cases would be the maximum ?

- [A] When both V & I are minimum
- [B] When both V & I are maximum
- [C] When only V is maximum
- [D] When only I is maximum

Answer: B

Explanation:-

- $P=VI$ Hence, it would be maximum when both V and I are maximum.

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5. For a SCR, conduction angle is 120° when average on-state current is 20 A. When the conduction angle is halved the earlier value, the on-state average current will be?

[A] 5 A

[B] 40 A

[C] 10 A

[D] 20 A

Answer: B

Explanation:-

When the conduction angle is halved, the device will conduct twice then it was conducting earlier. Hence, $I = 2 \times 20 = 40$ A.

6. A single-phase full bridge diode rectifier delivers power to a constant load current of 10 A. The average and rms values of the source currents will be respectively ?

[A] 5 A, 10 A

[B] 10 A, 10 A

[C] 5 A, 5 A

[D] 10 A, 5A

Answer: B

Explanation:-

As the load current is continuous, $I_{avg} = I_{rms} = 10$ A.

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7. Determine the loss in the snubber circuit, if $C = 0.545 \mu\text{F}$ and supply is 200 V, 10 kHz ?

- [A] 233 W
- [B] 133 W
- [C] 333 W
- [D] 233 W

Answer: B

Explanation:-

Snubber loss $P_s = (1/2) \times C \times V^2 \times f = 133.1 \text{ W}$.

8. TRIAC is used in ?

- [A] Chopper
- [B] Speed control of induction machine
- [C] Speed control of universal motor
- [D] None of the mentioned

Answer: C

Explanation:-

TRIAC is used in speed control of universal motor.

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9. The factors governing the induction heating are ?

- [A] Resistivity
- [B] Relative permeability
- [C] Magnetic field intensity
- [D] All of the mentioned

Answer: D

Explanation:-

Induction heating depends on all of the above given factors.

10. The converter circuit which employs turn on and turn off when the voltage and/or current through the device is zero at the instant of switching is ?

- [A] A conventional converter
- [B] A resonant converter
- [C] A zero switching circuit
- [D] None of the mentioned

Answer: B

Explanation:-

Resonant converters are used to turn on and turn off when the voltage and/or current through the device is zero at the instant of switching.

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