QUIZ – ANSWER KEY

QUIZ NO: 137

TOPIC: ELECTRICAL ENGINEERING

DATE: 23/12/2022

1. Solid State Relays (SSRs) have a ?

   [A] coil and contact arrangement

   [B] optocoupler

   [C] scr

   [D] none of the mentioned

   Answer: B

   Explanation: Coil and contact arrangement is used in mechanical relays, SSRs have a optocoupler which connects the control circuit to the power circuit via light sensitive devices.

2. 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

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voltage and/or current through the device is zero at the instant of switching.

3. Induction heating is a _____ type of heating ?

       [A] zero frequency

       [B] high frequency

       [C] power frequency

       [D] none of the mentioned

       Answer: B
       Explanation: As eddy current is proportional to the square of the supply frequency, induction heating is a high frequency heating.

4. 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.

5. The reverse recovery time of a diode is $t_{rr} = 3$ µs and the rate of fall of the diode current (di/dt) = 30 A/µs. Determine the storage charge ?

       [A] 145 µs

       [B] 135 µs

       [C] 0

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[D] none of the mentioned

Answer: B

Explanation: Storage charge = (1/2) x (di/dt) x $(t_{rr})^2$ = 135 μs.

6. 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 = 2x 20 = 40 A.

7. 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, Iavg = Irms = 10 A.

8. TRIAC is used in ?
    [A] chopper
    [B] speed control of induction machine

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[C] speed control of universal motor

[D] none of the mentioned

Answer: C

Explanation: TRIAC is used in speed control of universal motor.

9. The ratio V_{rms}/V_{dc} is known as ?

    [A] Form factor

    [B] Ripple factor

    [C] Utilization factor

    [D] None of the mentioned

Answer: A

Explanation: V_{rms}/V_{dc} = Form Factor

10. Determine the loss in the snubber circuit, if C = 0.545 µF and supply is 200 V, 10 kHz ?

    [A] 233 W

    [B] 133 W

    [C] 333 W

    [D] 233 W

Answer: B

Explanation: Snubber loss $P_s = (1/2) \times C \times V^2 \times f = 133.1$ W

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