

QUIZ – ANSWER KEY

QUIZ NO: 157

TOPIC: ELECTRICAL ENGINEERING

DATE: 25/01/2023

1. Which of the following isn't a type of rectifier?

- [A] Precision Half-wave Rectifier
- [B] Bridge Rectifier
- [C] Peak Rectifier
- [D] None of the mentioned

Answer: D

Explanation: All of the mentioned are different types of a rectifier.

2. For a half wave or full wave rectifier the Peak Inverse Voltage of the rectifier is always ?

- [A] Greater than the input voltage
- [B] Smaller than the input voltage
- [C] Equal to the input voltage
- [D] Greater than the input voltage for full wave rectifier and smaller for the half wave rectifier

Answer: B

Explanation: The peak input voltage is smaller than the input voltage due to the presence of diode(s). A single diode reduces the output voltage by approximately

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0.7V.

3. Bridge rectifier is an alternative for ?

- [A] Full wave rectifier
- [B] Peak rectifier
- [C] Half wave rectifier
- [D] None of the mentioned

Answer: A

Explanation: Bridge rectifier is a better alternative for a full wave rectifier.

4. Which of the following is true for a bridge rectifier?

- [A] The peak inverse voltage or PIV for the bridge rectifier is lower when compared to an identical center tapped rectifier
- [B] The output voltage for the center tapped rectifier is lower than the identical bridge rectifier
- [C] A transistor of higher number of coil is required for center tapped rectifier than the identical bridge rectifier
- [D] All of the mentioned

Answer: D

Explanation: All of the given statements are true for a bridge rectifier.

5. The diode rectifier works well enough if the supply voltage is much than greater than 0.7V. For smaller voltage (of few hundreds of millivolt) input which of the following can be used?

- [A] Superdiode
- [B] Peak rectifier
- [C] Precision rectifier

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[D] None of the mentioned

Answer: A

Explanation: For the supply voltages less than 0.7V super diodes are used.

6. A simple diode rectifier has ‘ripples’ in the output wave which makes it unsuitable as a DC source. To overcome this one can use ?

[A] A capacitor in series with a the load resistance

[B] A capacitor in parallel to the load resistance

[C] Both of the mentioned situations will work

[D] None of the mentioned situations will work

Answer: B

Explanation: A capacitor is parallel with a resistor can only makes ripples go away. Series connection will become equal to an open circuit once the capacitor is fully charged.

7. Consider a peak rectifier fed by a 60-Hz sinusoid having a peak value $V_p = 100$ V. Let the load resistance $R = 10$ k Ω . Calculate the fraction of the cycle during which the diode is conducting ?

[A] 1.06 %

[B] 2.12 %

[C] 3.18%

[D] 4.24%

Answer: C

Explanation:

$$w \Delta t \sim \sqrt{(2V_r/V_p)}$$

$$\Theta = \sqrt{(2 \times 2/100)}$$

$$\Theta = 0.2 \text{ rad or } 3.18\% \text{ of the cycle}$$

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8. Which of the following is not true for the duty cycle of a waveform?

- [A] Duty cycles can be used to describe the percent time of an active signal in an electrical device
- [B] Duty cycle can be used to determine the percentage of the time a signal is active
- [C] 60% duty cycle means that the waveform is active for 40% of the total time
- [D] 50% duty cycle means that the waveform is non-active for 50% of the total time

Answer: C

Explanation: 60% duty time means that a signal is active for 60% of the total time.

9. Limiting and clamping circuits are employed in as ?

- [A] FM transmitters
- [B] Television receivers and transmitter
- [C] Production of various signal waveforms such as trapezoidal, square or rectangular waves
- [D] All of the mentioned

Answer: D

Explanation: All of the given are uses of limiting and clamping circuits.

10. Which of the following is true for LEDs ?

- [A] The light emitted by a LED is inversely proportional to the current flowing through the diode
- [B] LED operate in a manner opposite to the working of the optoelectronics or photodiodes

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[C] LED cannot be used to generate coherent source of light

[D] None of the mentioned

Answer: B

Explanation: The working of the optoelectronics is opposite to that of the LEDs.

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