TEST #1

Date: March 22, 2021

1. The average load voltage produced by a power supply is measured using a(n) _____.

- ○ Oscilloscope
- ○ DC voltmeter
- ○ AC voltmeter

2. The use of a capacitive filter causes the PIV of a _____ rectifier to increase.

- ○ Half-wave
- ○ Full-wave
- ○ Bridge

3. Power rectifiers have extremely high _____ ratings.

- ○ Reverse voltage
- ○ Efficiency
- ○ Average forward current

4. The average load voltage produced by a filtered full-wave rectifier with a 36-V_{ac} transformer is approximately _____. [Hint]

- ○ 25.5 V
- ○ 50.9 V
- ○ 16.2 V

5. The average load voltage produced by a full-wave rectifier with an 18-V_{ac} transformer is approximately equal to the average load voltage produced by a half-wave rectifier with a(n) _____ transformer. [Hint]

- ○ 18 V_{ac}
- ○ 36 V_{ac}
- ○ 9 V_{ac}

6 . The output from a rectifier is normally connected to a _____.

- ○ Filter
- ○ Voltage regulator
- ○ Transformer

7 . A _____ converts ac to a single-polarity output by converting the positive alternations to negative alternations, or vice versa. [Hint]

- ○ Half-wave rectifier
- ○ Voltage regulator
- ○ Full-wave rectifier

8 . _____ is a measure of the ability of a power supply to maintain a constant output voltage despite variations in load current demand. [Hint]

- ○ Line regulation
- ○ Load regulation
- ○ Current regulation

9 . _____ provide the best overall protection from power supply surge currents and excessive output ripple. [Hint]

- ○ Capacitive filters
- ○ RC filters
- ○ LC filters

10 . As load resistance varies (within specified limits), a zener regulator maintains a constant _____. [Hint]

- ○ Load voltage
- ○ Load current
- ○ Line current

11 When a pn junction's depletion layer is narrowed and the device acts as a nearly perfect conductor it is

(a) forward-biased
(b) reverse-biased
(c) unbiased
(d) none of the above

12. The maximum reverse bias potential that can be applied to a zener diode before it enters the zener region is called the

(a) threshold voltage
(b) PIV
(c) barrier voltage
(d) depletion voltage
(e) none of the above

13. When a pn junction is reverse-biased, the depletion layer is _____ and the device acts as a near-perfect _____.

(a) narrowed, conductor
(b) narrowed, insulator
(c) widened, conductor
(d) widened, insulator
(e) none of the above

14. The electrode with n-type material of a diode is called the

(a) anode
(b) cathode
(c) depletion region
(d) zender region
(e) none of the above

15. Determine the static resistance of a diode whose V(D) = 0.8 V and I(D) = 4 mA.

(a) 4 Ohms
(b) 80 Ohms
(c) 200 Ohms
(d) 1000 Ohms
(e) none of the above

16. The steeper the slope of the diode characteristic curve:

(a) the greater the ac resistance
(b) the greater diode's capacitance
(c) the less the diode's ac resistance
(d) the less diode's breakdown voltage
(e) all of the above

17. The model of the diode represents the device as

(a) an ideal diode
(b) in series with a battery
(c) in series with a battery and a resistor
(d) an ideal diode and a switch
(e) a switch and a battery

18. When tested with an ohmmeter, a diode should have a relatively high resistance for _____ condition.

(a) the reverse-biased
(b) the forward-biased
(c) both reverse- and forward-bias
(d) none-biased
(e) none of the above

19. The point of intersection between the characteristic curve of the diode and the resistor's loadline is known as:

(a) the point of operation
(b) the Q-point
(c) the quescent point
(d) all of the above

20. Given a series silicon diode circuit with the resistor R = 2K ohms and an applied voltage of 10 volts, what is I(DQ)?

(a) 4.65 mA
(b) 1.0 mA
(c) 10 mA
(d) 0.5 mA