

Zener Diode Voltage Regulators

1. Which of the following is not an essential element of a dc power supply
 - a. Rectifier
 - b. Filter
 - c. Voltage regulator
 - d. Voltage amplifier
2. What is true about the breakdown voltage in a Zener diode?
 - a. It decreases when current increases.
 - b. It destroys the diode.
 - c. It equals the current times the resistance.
 - d. It is approximately constant.
3. Which of these is the best description of a Zener diode?
 - a. It is a rectifier diode.
 - b. It is a constant voltage device.
 - c. It is a constant current device.
 - d. It works in the forward region.
4. A Zener diode
 - a. Is a battery
 - b. Has a constant voltage in the breakdown region
 - c. Has a barrier potential of 1 V
 - d. Is forward biased
5. The voltage across the Zener resistance is usually
 - a. Small
 - b. Large
 - c. Measured in volts
 - d. Subtracted from the breakdown voltage
6. If the series resistance increases in an unloaded Zener regulator, the Zener current
 - a. Decreases
 - b. Stays the same
 - c. Increases
 - d. Equals the voltage divided by the resistance

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7. In the second approximation, the total voltage across the Zener diode is the sum of the breakdown voltage and the voltage across the
- a. Source
 - b. Series resistor
 - c. Zener resistance
 - d. Zener diode
8. The load voltage is approximately constant when a Zener diode is
- a. Forward biased
 - b. Reverse biased
 - c. Operating in the breakdown region
 - d. Unbiased
9. In a loaded Zener regulator, which is the largest current?
- a. Series current
 - b. Zener current
 - c. Load current
 - d. None of these
10. If the load resistance increases in a Zener regulator, the Zener current
- a. Decreases
 - b. Stays the same
 - c. Increases
 - d. Equals the source voltage divided by series resistance
11. When the source voltage increases in a Zener regulator, which of these currents remain approximately constant ?
- a. Series current
 - b. Zener current
 - c. Load current
 - d. None of these
12. If the Zener diode in a Zener regulator is connected with the wrong polarity, the load voltage will be closest to
- a. 0.7 V
 - b. 10 V
 - c. 14 V
 - d. 18 V
13. A voltage regulator is a circuit which
- a. Converts the ac voltage to dc voltage
 - b. Smoothens the ac variation in dc output voltage
 - c. Maintains a constant dc output voltage inspite of the fluctuations in ac input voltage or load current
 - d. None of the above

14. The percentage voltage regulation of voltage supply providing 100V unloaded and 95V at full load is
- a. 5.3%
 - b. 5.0%
 - c. 0.53%
 - d. None of the above
15. Which of the following voltage regulator is preferred for providing large values of load current
- a. Zener diode shunt regulator
 - b. Transistor series regulator
 - c. Transistor shunt regulator
 - d. None of the above
16. The main job of a voltage regulator is to provide a nearly output voltage.
- a. sinusoidal
 - b. constant
 - c. smooth
 - d. fluctuating
17. A 10-V dc regulator power supply has a regulation of 0.005 per cent. Its output voltage will vary within an envelope ofmillivolt.
- a. ± 2.5
 - b. ± 0.5
 - c. ± 5
 - d. ± 0.05
18. An ideal voltage regulator has a voltage regulation of
- a. 1
 - b. 100
 - c. 50
 - d. 0
19. In a Zener diode shunt voltage regulator, the diode regulates so long as it is kept incondition.
- a. forward
 - b. reverse
 - c. loaded
 - d. unloaded
20. A transistor series voltage regulator is called emitter-follower regulator because the emitter of the pass transistor follows thevoltage.
- a. output
 - b. input
 - c. base
 - d. collector

Answers

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|---------|---------|---------|---------|
| 1. (d) | 2. (d) | 3. (b) | 4. (b) |
| 5. (a) | 6. (a) | 7. (c) | 8. (c) |
| 9. (c) | 10. (c) | 11. (c) | 12. (a) |
| 13. (c) | 14. (a) | 15. (b) | 16. (b) |
| 17. (a) | 18. (d) | 19. (b) | 20. (c) |

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