1. Which of the following is considered a secondary energy source?
   1. Natural gas
   2. Electricity
   3. Nuclear power
   4. Coal
2. The \_\_\_\_\_\_ orbits the nucleus of an atom
   1. electron
   2. proton
   3. neutron
   4. nucleus
3. An atom with how many electrons in its outer shell is the best conductor of electricity?
   1. 0
   2. 1
   3. 4
   4. 8
4. When a balanced atom loses an electron it becomes a \_\_\_\_\_\_\_\_ ion.
   1. Negative
   2. Positive
5. Current can exist without voltage.
   1. True
   2. False
6. Current is the movement of \_\_\_\_\_.
   1. electrons
   2. protons
   3. neutrons
   4. All of the above
7. A \_\_\_\_ produces electricity using pressure.
   1. generator
   2. piezoelectric device
   3. thermocouple
   4. photovoltaic
8. \_\_\_\_ is an example of a control device in an electrical circuit.
   1. switch
   2. lightbulb
   3. battery
   4. wire
9. The letter \_\_\_\_\_ is used to represent current flow in a circuit.
   1. I
   2. C
   3. R
   4. P
10. The symbol Ω is used to represent resistance in an electrical circuit.
    1. True
    2. False
11. Which factor will cause the resistance of a wire to increase?
    1. decrease in its length
    2. an increase in its diameter
    3. an increase of its temperature
    4. using silver instead of copper
12. When a switch is in a position that causes current to flow, the circuit in which it is connected is open.
    1. True
    2. False
13. A grounding device \_\_\_\_\_\_.
    1. acts as if it conducts electricity
    2. is a power source
    3. acts the same as a circuit breaker
    4. is considered a loading device
14. A \_\_\_\_\_ responds to excessive current more quickly that a \_\_\_\_\_\_ in response to excessive current conditions.
    1. fuse, circuit breaker
    2. circuit breaker, fuse
    3. human, fuse
    4. human, circuit breaker
15. The term \_\_\_\_\_\_\_\_ proportional refers to the value of one quantity affecting value of another the same way by the same ratio.
    1. directly
    2. inversely
16. If V doubles, I halves if R is not changed.
    1. True
    2. False
17. The resistance in the circuit is how many ohms when the applied voltage is 18 volts and the current is 20mA?
    1. 90Ω
    2. 360Ω
    3. 900Ω
    4. 3.6Ω
18. The voltage of a circuit is \_\_\_\_\_\_ volts when its resistance is 10k ohms and the current is 500uA.
    1. 5
    2. 50
    3. 500
    4. 2000
19. The sum of the currents through all of the components in a series circuit equal total current.
    1. True
    2. False
20. Which statement is true about a parallel circuit?
    1. A parallel circuit is configured so that current has **one** or more paths for current to flow.
    2. The total current in a parallel circuit is equal to the sum of the branch currents.
    3. In a parallel circuit the current in each branch is directly proportional to the resistance of the branch.
    4. The source voltage is equal to the sum of all the voltage drops across each branch in a parallel circuit
21. The horizontal axis of a sine wave indicates \_\_\_\_\_.
    1. polarity
    2. voltage amplitude
    3. current amplitude
    4. frequency
22. If the current is at a greater level than what the wire conductor is it is designed for, it could \_\_\_\_.
    1. overheat and open
    2. cause a short
    3. overheat and start a fire
    4. Any of the above
23. Electrical current takes the path of least resistance.
    1. True
    2. False
24. According to the NEC (National Electrical Code) a voltage greater than \_\_\_\_\_ volts is defined as *High Voltage*.
    1. 120
    2. 230
    3. 460
    4. 600
25. A current as low as \_\_\_\_\_ can cause cardiac arrest.
    1. 100 milliamps
    2. 1 amp
    3. 5 amps
    4. 10 amps
26. The real measure of the intensity of an electrical shock lies in the amount of \_\_\_\_\_.
    1. voltage
    2. amps forced through the body
27. Ventricular fibrillation is the \_\_\_\_\_.
    1. stoppage of the heart
    2. loss of regular heart rhythm
    3. Both a and b
    4. Neither a or b
28. Current cannot flow through a substance that is considered an extremely poor conductor, even if the voltage is great enough.
    1. True
    2. False
29. Static electricity \_\_\_\_\_ flow in a circuit.
    1. does
    2. does not
30. \_\_\_\_\_ are used to minimize the build-up of static electricity.
    1. Grounding pads
    2. Grounded wristbands
    3. Rubber floor mats
    4. All of the above

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