

---

Student Name \_\_\_\_\_

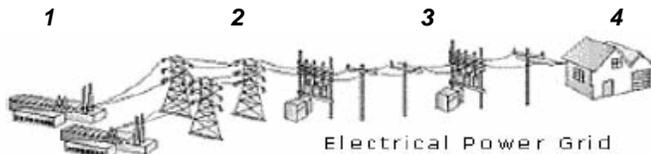
Class \_\_\_\_\_

1. When **charged objects** are brought close to uncharged objects, this occurs ...
  - A. **separation**
  - B. **repulsion**
  - C. **neutralization**
  - D. **atomization**
  
2. The **laws of electric charges** include all of the following, EXCEPT...
  - A. **opposite charges attract each other**
  - B. **charged objects attract neutral objects**
  - C. **similar (like) charges repel each other**
  - D. **opposite charges repel each other**
  
3. Electric charge can be detected using an electroscope. A pocket-sized version, used to measure exposure to atomic radiation is called a ...
  - A. **oscilloscope**
  - B. **dosimeter**
  - C. **radioscope**
  - D. **atom-radiator**
  
4. The purpose of a 'static strap' worn by electronic technicians, when working with electronic components, is to make sure the static charge on the technician's hand or body is ...
  - A. **reinforced**
  - B. **neutralized**
  - C. **dissipated**
  - D. **discharged**
  
5. Non-conductors, or insulators, must be neutralized with this ...
  - A. **discharge**
  - B. **radiation**
  - C. **ionization**
  - D. **recharger**
  
6. The component in the circuit that controls the flow of the electricity is the ...
  - A. **source**
  - B. **load**
  - C. **conductor**
  - D. **switch**
  
7. These types of conductors have no resistance to electron flow and therefore are considered to be perfect conductors. They are ...
  - A. **metallic conductors**
  - B. **magnetic conductors**
  - C. **superconductors**
  - D. **superior conductors**
  
8. The potential difference across two points is usually referred to as ...
  - A. **micrometer**
  - B. **voltage**
  - C. **resistance**
  - D. **voltmeter**
  
9. What symbol does this  represent in an electrical circuit diagram?
  - A. **lamp**
  - B. **switch**
  - C. **battery**
  - D. **resistor**
  
10. Comparing an electric current to a water system helps us model electrical principles. The water flows through the pipes in the system and is controlled by valves, which represent ...
  - A. **loads**
  - B. **resistance**
  - C. **switches**
  - D. **conductors**

11. *Resistance* is a measure of how difficult it is for the electrons to flow through a conductor. The standard unit for resistance is *ohm*. The symbol for the ohm is ...
- A.  $\Sigma$       B.  $\Omega$       C.  $\beta$       D.  $\Phi$
12. A certain condition needs to be met in order to prove the mathematical link between voltage, current and resistance as represented by Ohm's Law. The condition is that ...
- A. **resistance must be created**  
 B. **calculations must be precise**  
 C. **temperature must be constant**  
 D. **measurement must be accurate**
13. Using Ohm's Law calculate how much current is created when **210 V** creates a current through a **150 ohm** resistor. Use this shortcut formula to solve the problem
- A. **0.5 A**  
 B. **2 A**  
 C. **4.5 A**  
 D. **1.4 A**
- 
14. To alter electron flow gradually, like in a surge-protection device, a variable resistor is used. A variable of this type is also called a ...
- A. **rheostat**  
 B. **thermistor**  
 C. **varistors**  
 D. **transistor**
15. An electrical circuit that provides multiple paths for the current to flow is called a ...
- A. **series circuit**  
 B. **single circuit**  
 C. **parallel circuit**  
 D. **multiple circuit**
16. 4 factors affect the resistance of wire. The gauge of the wire ( AWG # ) represents the ...
- A. **length**  
 B. **temperature**  
 C. **material**  
 D. **cross-section area**
17. Electrical energy can be produced from other forms of energy, or it can be converted into other kinds of energy. The conversion in a battery is
- A. **chemical energy into mechanical energy**  
 B. **mechanical energy into electrical energy**  
 C. **chemical energy into electrical energy**  
 D. **solar energy into electrical energy**
18. The basic principle of the thermocouple was discovered by Thomas Johann Seebeck in 1821, and in his honor was named the '**Seebeck ...**
- A. **Principle**  
 B. **Effect**  
 C. **Law**  
 D. **Action**
19. A *thermo-electric generator* is a device based on a thermocouple that converts heat directly into electricity without moving parts. Several thermocouples connected in a series is called a ...
- A. **thermopile**  
 B. **thermostat**  
 C. **thermopile.**  
 D. **thermal farm**
20. When a crystal or Rochelle salt is compressed or pulled, a potential difference is built up on the opposite sides of the crystal. Conductors then take this through a circuit to produce electric energy (a spark). A barbeque 'spark' lighter uses the ...
- A. **piezoelectric effect in reverse**  
 B. **photovoltaic cells**  
 C. **thermo-nuclear fission**  
 D. **light-emitting diodes**

21. Solid-state components, when connected to a semiconductor chip in the right direction, will produce light and last for many years. These light emitting devices are called ...
- A. LED's
  - B. CCD's
  - C. EEG's
  - D. CFC's
22. A source of electricity consisting of a number of alternating disks of two different metals separated by acid-moistened pads, forming primary cells connected in series are called ...
- A. Galvanic cells
  - B. Voltaic piles
  - C. Cadmium cells
  - D. Alkaline piles
23. Luigi Galvani noticed when two different metals, connected together, touched a frog's nerve at the same time, the frog's muscle would contract. He called this ...
- A. muscle fibre
  - B. kermit power
  - C. animal electricity
  - D. electrochemical cell
24. The different metals in an electrochemical cell, one which releases electrons, and one which attracts electrons are called ...
- A. electrodes
  - B. electrolytes
  - C. electroplates
  - D. electroplaques
25. After the reactants are used up the electrochemical reactions will not continue in this type of cell ...
- A. conducting cell
  - B. secondary cell
  - C. primary cell
  - D. battery cell
26. The **electrolyte paste**, which enables a dry cell to conduct electricity, does so because, it contains ...
- A. an insulator
  - B. static electrical charges
  - C. chemicals that form ions
  - D. metal plates that release electrons
27. Rechargeable cells use an external electrical source to which can be recharged because the ...
- A. wet cells are drying out
  - B. electrodes can be reversed
  - C. electrolyte is being replaced
  - D. chemical reactions can be reversed
28. Hans Christian Oersted found that an electric current created a magnetic field. When electrical energy passes over a compass, the compass needle ...
- A. spins
  - B. is deflected
  - C. rotates clockwise
  - D. rotates counterclockwise
29. The amount of needle movement depended on how much electric current was flowing in the wire. When the current was reversed, the needle moved ...
- A. slower at first
  - B. faster than usual
  - C. In the opposite direction
  - D. back and forth
30. The strength of an electromagnet is affected by all of the following, **Except** ...
- A. type of wire
  - B. number of coils
  - C. strength of current
  - D. type and size of core

31. Mr. Jones was trying to make an electromagnetic coil to demonstrate the power it has. His coil worked, but not very well. The most likely reason was because the ...
- A. coil was made of copper wire
  - B. battery was brand new
  - C. metal core was too thin
  - D. battery was dead
32. A generator has a coil of wire rotating inside a stationary field magnet. The central axle has a loop of wire attached to two slip rings. The current is switched as the loops move up and down alternatively through the magnetic field. The slip rings conduct the current to the circuit through the brushes. The electricity produced by this type of generator is called ...
- A. direct current
  - B. alternating current
  - C. semi-conducting current
  - D. static electrical current
33. All electric motors operate on this principle – opposite poles ...
- A. attract and like poles repel.
  - B. repel and like poles attract
  - C. move away from each other
  - D. spin in opposite directions
34. AC motors have a rotating core, or rotor, surrounded by a stationary component called a ...
- A. stapor
  - B. stator
  - C. regulator
  - D. activator



35. Use the illustration provided to identify where you would likely find the highest voltage ...
- A. 1
  - B. 2
  - C. 3
  - D. 4
36. The lower part of the service panel contains many fuses that are used to regulate ...
- A. branch circuits
  - B. circuit breakers
  - C. breaker panels
  - D. power switches
37. Microcircuits are circuits that are miniaturized to fit into a small space and perform many functions. Transistors in these modern digital circuits act as ...
- A. fuses
  - B. loads
  - C. valves
  - D. switches
38. A 15A current passes through an indoor heater when it is plugged into your home outlet (110V). What is the formula to determine the power of the heater?
- A.  $P = I / V$
  - B.  $P = V / I$
  - C.  $P = I \times V$
  - D.  $P = E \times t$
39. Which of the following is the lowest amount of current that can be fatal...
- A. 0.001A
  - B. 0.01V
  - C. 0.1A
  - D. 1.0A

40. A ghetto blaster's power rating is 28 watts. If it was left on 24 hours a day for 30 days and the cost of electricity, in Alberta, is \$0.11 per kilowatt hour. What is the cost of operating the ghetto blaster?
- A. \$ 2.22
  - B. \$ 22.18
  - C. \$ 221.78
  - D. \$ 2217.60
41. "The problem with this computer game", said Matt, "is that the power bar keeps popping its circuit. I think that I need a better power bar, so I can play my game without interruption."
- A. Don't use electricity near water
  - B. Improper or unsafe equipment
  - C. Keep a safe distance high voltage
  - D. Fuses are used to prevent overheating
42. Manufacturing and industrial plants install antipollution systems to remove harmful emissions, such as sulfur dioxide. These systems are called ...
- A. reactors
  - B. bleachers
  - C. scrubbers
  - D. precipitators
43. The narrow pathway in the dam which directs water to the turbines is called the ...
- A. channel
  - B. spillway
  - C. penstock
  - D. generator
44. A system that can produce two different types of energy for industrial, or commercial use is called ...
- A. regeneration
  - B. cogeneration
  - C. electrolysis
  - D. bigeneration
45. A single windmill produces a small amount of electricity, but many connected together can generate a large amount of electricity. Many windmills connected together are called wind ...
- A. farms
  - B. arrays
  - C. groups
  - D. clusters