

## TOPIC 1.0 Electrical energy can be transferred and stored.

Name \_\_\_\_\_

Class \_\_\_\_\_

## 1.1 Static Electricity

1. These **forces** are responsible for lightning, nature's most spectacular show of electricity ...
  - A. magnetic forces
  - B. electric forces
  - C. attractive forces
  - D. repelling forces
  
2. Some particles in an atom are charged. Those that are **charged positively** are called ...
  - A. neutrons
  - B. electrons
  - C. positrons
  - D. protons
  
3. Thales found that rubbing amber (a resin from a fossilized tree) would attract some materials. Electricity comes from the Greek word for amber, which is ...
  - A. ampere
  - B. statik
  - C. elektron
  - D. umberere
  
4. When **charged objects** are brought close to uncharged objects, this occurs ...
  - A. separation
  - B. attraction
  - C. neutralization
  - D. atomization
  
5. The **laws of electric charges** include all of the following, EXCEPT...
  - A. opposite charges attract each other
  - B. opposite charges repel each other
  - C. similar (like) charges repel each other
  - D. charged objects attract neutral objects
  
6. When you feel or see a spark while touching a doorknob – after rubbing your feet across a carpet, the spark is referred to as ...
  - A. static spark
  - B. electric charge
  - C. static discharge
  - D. electrical discharge
  
7. A **Van de Graaff generator** uses this to build up a static charge on its surface ...
  - A. moisture
  - B. friction
  - C. heat
  - D. light
  
8. This device cleans the air and recovers products from the smoke coming out of smokestacks by the static charge it produces. The device is called ...
  - A. a particle accelerator
  - B. an electric generator
  - C. an electrostatic precipitator
  - D. a catalytic converter

## 1.2 Current Electricity

9. An **electric eel** can produce its own electricity. This is used to stun or kill its prey, protection and communication. This specialized organ contains thousands of modified muscle cells called ...
- A. electrostatics
  - B. electrolytes
  - C. electrolysites
  - D. electroplaques
10. An **electrical current** can only be produced if there is a ...
- A. large quantity of particles
  - B. a steady flow of charged particles
  - C. a safe supply of energy
  - D. discharge of electricity
11. The units used to measure the **flow** of an electric current are ...
- A. amperes
  - B. potential energy
  - C. potential difference
  - D. volts
12. 'Voltage' or '**potential difference**' is the energy carried by charged particles equal to the voltage times the ...
- A. total charge of the electrons
  - B. flow rate of the protons
  - C. charge of the protons
  - D. number of electrons
13. Very small amounts of electrical energy are measured by a voltmeter in **millivolts**, which equal ...
- A. 100 volts
  - B. 1000 volts
  - C. 1 one hundredth of a volt
  - D. 1 one thousandth of a volt
14. The very first measurements of current were done with simple **galvanometers**. These devices detected current by using ...
- A. an electric field
  - B. a compass needle
  - C. a conduction wire
  - D. an electric circuit
15. High-voltage transmission lines often give off an **eerie blue glow**. Sailors saw this same glow around the tips of ships' masts just before storms. They called it ...
- A. Blue Mist Rain
  - B. St. Elmo's Fire
  - C. Sun Spot Sparkle
  - D. Mystic Glow
16. Which of the following would **current** most likely have a difficult time passing through...
- A. eraser
  - B. pencil
  - C. paper clip
  - D. copper wire

## 1.3 Electrical Safety

17. When lightning hits an area where there is sand and rock, these **glass-lined tubes** can be created. They are called ...
- A. stalagmites
  - B. stalactites
  - C. fulgurites
  - D. fusinites
18. When electricity takes a path that is unintended, it is called a ...
- A. short circuit
  - B. short pathway
  - C. incomplete pathway
  - D. incomplete circuit
19. Which of the following is **most likely** enough electricity to kill you...
- A. .01A
  - B. .01V
  - C. 10A
  - D. 10V
20. Tommy Passmore was inspecting the wiring in a new house and found that the **green wire** had not been connected properly in the electrical panel. The wiring did not pass safety inspection because the ...
- A. panel had a short circuit
  - B. green wire was the hot wire
  - C. electrical circuits were overloaded
  - D. electrical outlets were not grounded
21. A power line has snapped in an ice storm. One end landed on a car, with the driver still inside. The driver will **not be electrocuted** as long as he ...
- A. keeps calm and moves slowly out of the car
  - B. makes sure he doesn't touch the wire as he gets out
  - C. stays inside the car until help arrives
  - D. doesn't step in any water as he gets out
22. The **dangers of electrical shock** can vary depending on the situation. Which of the following would be the most dangerous (most likely to get a nasty shock!) ...
- A. Touching an electrified fence on a hot summer day while wearing running shoes.
  - B. Touching an electrified fence when you are barefoot in a rainstorm.
  - C. Touching a metal fence on a hot summer day while wearing running shoes.
  - D. Touching a metal fence when you are barefoot in a rainstorm.
23. A fuse and a circuit breaker interrupt a circuit when there is too much current flowing. The disadvantage of the fuse is that it ...
- A. can be easily repaired
  - B. has to be replaced when it works
  - C. doesn't work on really small overloaded circuits
  - D. can be used over and over – taking a long time to wear out
24. This **agency** is responsible for ensuring all electrical devices are safe to use...
- A. WHMIS Council
  - B. Canadian Safety Agency
  - C. Canadian Standards Association
  - D. Canadian Electrical Device Safety Council

## 1.4 Cells and Batteries

25. Some **foods** can generate enough electricity to run a clock. The most effective source for this type of energy is ...
- A. dry foods
  - B. dairy products
  - C. deserts and beverages
  - D. fruit and vegetables
26. The **electrolyte paste**, which enables a dry cell to conduct electricity, does so because, it contains ...
- A. static electrical charges
  - B. metal plates that release electrons
  - C. chemicals that form ions
  - D. an insulator
27. Lead and zinc are usually used as the metal electrodes in a wet cell, such as a car battery. The sulfuric acid electrolyte reacts with the metal electrodes to make the battery produce electrical energy. Identify the statement that explains this correctly
- A. The electrolyte gradually eats the **lead** electrode giving it a **negative** charge
  - B. The electrolyte gradually eats the **zinc** electrode giving it a **negative** charge
  - C. The electrolyte gradually eats the **lead** electrode giving it a **positive** charge
  - D. The electrolyte gradually eats the **zinc** electrode giving it a **positive** charge
28. A **rechargeable battery** can be recharged because the ...
- A. chemical reactions can be reversed
  - B. electrodes can be reversed
  - C. electrolyte is being replaced
  - D. wet cells are drying out
29. The process used to **split molecules** into their individual elements is called ...
- A. electricity
  - B. electroplating
  - C. electrolysis
  - D. anodizing
30. When bars of impure gold and strips of pure gold are placed in a strong acid solution and electricity is added, bars of very pure gold can be produced. This **process** is called...
- A. electricity
  - B. electroplating
  - C. electrolysis
  - D. electrorefining
31. A single **6V battery** is made up of ...
- A. 1 very strong cell that is 6 volts
  - B. 2 cells – 3 volts each
  - C. 3 cells – 2 volts each
  - D. 4 cells – 1.5 volts each
32. Less expensive products can be coated with a thin layer of an expensive metal (like gold) to make them look more expensive and to make them last longer (helps prevent rusting). This **process** is called...
- A. electricity
  - B. electroplating
  - C. electrolysis
  - D. electrorefining