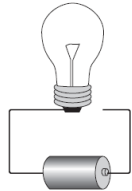


**SOL 5.4 Electricity**  
**Released Test Questions**  
 Compiled by SOLpass [www.solpass.org](http://www.solpass.org)

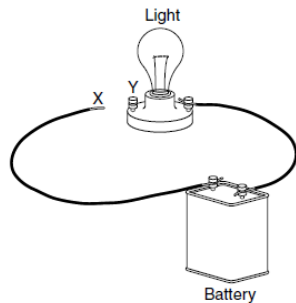
## Circuits

1. Which of these best completes the circuit?  
 a. Rubber band  
 b. Metal nail  
 c. Leather shoelace  
 d. Wooden toothpick



2. Which of these materials is a good conductor of electricity?  
 a. Rubber  
 b. Glass  
 c. Metal  
 d. Newspaper
3. Electric lights will not come on unless their electrical circuit is a —  
 a. open circuit  
 b. series circuit  
 c. closed circuit  
 d. short circuit

4. A fifth-grade class constructed this circuit. Which of these objects most likely made the light glow when connected to points X and Y?  
 a. Plastic straw  
 b. Cotton string  
 c. Aluminum foil  
 d. Rubber eraser



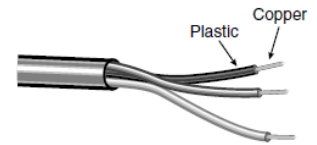
## Conductors / Insulators

5. Which of these substances conducts electricity the best?  
 a. Wood  
 b. Brick  
 c. Copper  
 d. Plastic
6. The electrician in this picture is wearing rubber gloves for protection. The purpose of the rubber gloves is to —  
 a. keep the electrician dry  
 b. create an electrical circuit  
 c. produce electricity  
 d. insulate the electrician
7. What material would be safest to use as an insulator to cover electrical wires?  
 a. Aluminum  
 b. Tin  
 c. Rubber  
 d. Water

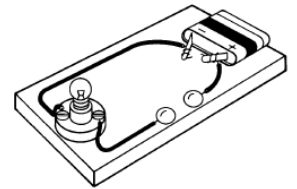


8. Copper wire is often wrapped in plastic. Plastic material is a good —  
 a. electromagnet  
 b. insulator  
 c. circuit  
 d. current

9. Many electrical wires are wrapped with a plastic coating because plastic is —  
 a. less expensive than steel  
 b. more dense than copper  
 c. able to keep its shape  
 d. a good insulator



10. This instrument can be used to see if materials conduct electricity. Which of these groups contains items that could all conduct electricity to complete the circuit?  
 a. Rubber ball, plastic comb, nail  
 b. Paper clip, penny, screw  
 c. Cork, dollar bill, tweezers  
 d. Pencil, eraser, spoon



## Static Electricity

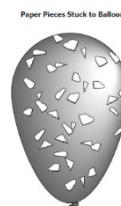
11. Early scientists most likely saw a discharge of electricity for the first time when observing a —  
 a. waterfall  
 b. rainbow  
 c. lightning storm  
 d. volcano erupting



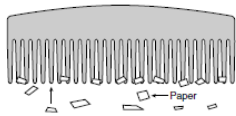
12. Benjamin Franklin conducted this famous experiment that showed lightning was —  
 a. a movement of air molecules  
 b. a magnetic field  
 c. an electrical discharge  
 d. a glowing chemical

13. Benjamin Franklin discovered the form of energy produced by lightning. Experiments with lightning killed many people before he discovered that lightning is a form of —  
 a. gravity  
 b. water  
 c. magnetism  
 d. electricity

14. Bits of paper are attracted to the surface of this balloon. What attracts the paper pieces to the balloon?  
 a. Friction  
 b. Magnetism  
 c. Potential energy  
 d. Static electricity



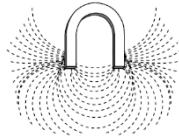
15. The picture shows a comb that was used on a cold, dry day. Which of these cause the bits of paper to be attracted to the comb?
- Magnetic forces
  - Chemical reactions
  - Static electricity
  - Heat differences



## Electromagnetism

16. A bar magnet is placed on a table, and a sheet of blank paper is placed over the magnet. What could be sprinkled on the paper to show the magnetic field of the bar magnet?
- Salt
  - Iron filings
  - Sand
  - Soil

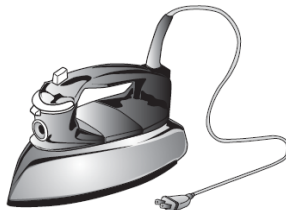
17. In this picture, the iron filings show the shape of the magnetic —
- axis
  - core
  - field
  - pole



18. To make an electromagnet, a conductor should be coiled around —
- a glass tube
  - an iron nail
  - a roll of paper
  - a wooden stick
19. Michael Faraday showed how electric current in a wire produces —
- molecules
  - chemicals
  - a vibration
  - a magnetic field
20. Which of these can most easily produce magnetic fields?
- Sunlight
  - Wind
  - Electricity
  - Flowing water

## Energy Forms & Transformations

21. Which energy transformation most likely occurs in a steam iron?
- Electrical energy changes to heat energy.
  - Electrical energy changes to sound energy.
  - Mechanical energy changes to heat energy.
  - Mechanical energy changes to light energy.

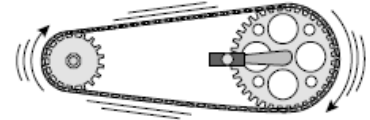


22. Which form of energy is being used by the toaster?
- Chemical
  - Electrical
  - Solar
  - Nuclear



23. The energy used to move most bicycles is an example of what type of energy?
- Electrical
  - Mechanical
  - Chemical
  - Nuclear

24. Which form of energy is best shown in this picture?
- Mechanical
  - Electrical
  - Chemical
  - Nuclear



25. Which item is designed to change electrical energy into heat energy?
- Alarm clock
  - Hand dryer
  - Fan
  - Telephone

26. An electric motor is designed to turn electrical energy into —
- solar energy
  - potential energy
  - static electricity
  - mechanical energy

27. When in operation, this tool transforms electrical energy mostly into —
- chemical energy
  - solar energy
  - sound energy
  - mechanical energy

