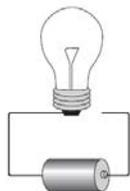


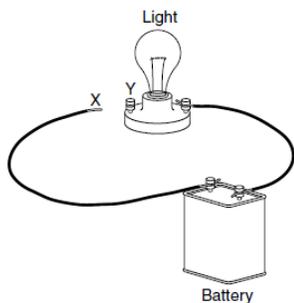
## Circuits / Conductors / Insulators

1. Which of these best completes the circuit?  
 (2008 test – question 38)
- Rubber band
  - Metal nail**
  - Leather shoelace
  - Wooden toothpick

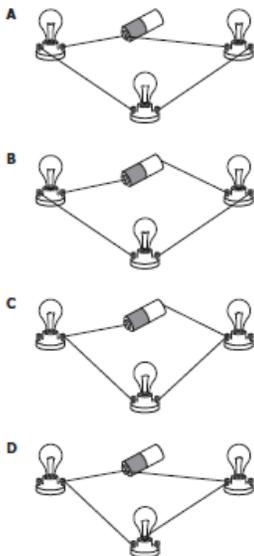


2. Which of these materials is a good conductor of electricity?  
 (2005 test – question 32)
- Rubber
  - Glass
  - Metal**
  - Newspaper
3. Electric lights will not come on unless their electrical circuit is a —  
 (2001 test – question 36)
- parallel circuit
  - series circuit
  - closed circuit**
  - 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?  
 (2010 test – question 27)
- Plastic straw
  - Cotton string
  - Aluminum foil**
  - Rubber eraser



5. A class prepared some electric circuits using battery, connecting wires, and three light bulbs. Which of these circuits can make the three bulbs light?  
 (b)  
 (2007 test – question 25)



6. Which of these substances conducts electricity the best?  
 (2007 test – question 37)
- Wood
  - Brick
  - Copper**
  - Plastic

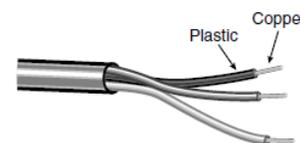
7. The electrician in this picture is wearing rubber gloves for protection. The purpose of the rubber gloves is to —  
 (2009 test – question 13)
- keep the electrician dry
  - create an electrical circuit
  - produce electricity
  - insulate the electrician**



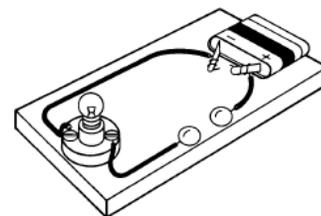
8. What material would be safest to use as an insulator to cover electrical wires?  
 (2003 test – question 15)
- Aluminum
  - Tin
  - Rubber**
  - Water

9. Copper wire is often wrapped in plastic. Plastic material is a good —  
 (2008 test – question 14)
- electromagnet
  - insulator**
  - circuit
  - current

10. Many electrical wires are wrapped with a plastic coating because plastic is —  
 (2004 test – question 13)
- less expensive than steel
  - more dense than copper
  - able to keep its shape
  - a good insulator**



11. 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?  
 (2002 test – question 37)
- Rubber ball, plastic comb, nail
  - Paper clip, penny, screw**
  - Cork, dollar bill, tweezers
  - Pencil, eraser, spoon



# Static Electricity

12. Early scientists most likely saw a discharge of electricity for the first time when observing a — (2011 test – question 4)
- waterfall
  - rainbow
  - lightning storm**
  - volcano erupting



13. Benjamin Franklin conducted this famous experiment that showed lightning was —

(2003 test – question 19)

- a movement of air molecules
- a magnetic field
- an electrical discharge**
- a glowing chemical

14. 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 —

(2001 test – question 4)

- gravity
- water
- magnetism
- electricity**

15. Bits of paper are attracted to the surface of this balloon. What attracts the paper pieces to the balloon?

Paper Pieces Stuck to Balloon



(2010 test – question 34)

- Friction
- Magnetism
- Potential energy
- Static electricity**

16. A comb is rubbed with a piece of wool fabric and placed next to some scraps of paper. The paper moves toward the comb. The movement of the paper is caused by —

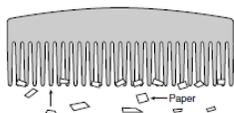
(2005 test – question 38)

- chemical energy
- magnetic attraction
- mechanical energy
- static electricity**

17. 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?

(2003 test – question 32)

- Magnetic forces
- Chemical reactions
- Static electricity**
- Heat differences



# Electromagnetism

18. 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?

(2002 test – question 30)

- Salt
- Iron filings**
- Sand
- Soil

19. In this picture, the iron filings show the shape of the magnetic —

(2003 test – question )

- axis
- core
- field**
- pole



20. To make an electromagnet, a conductor should be coiled around —

(2011 test – question 3)

- a glass tube
- an iron nail**
- a roll of paper
- a wooden stick

21. Michael Faraday showed how electric current in a wire produces —

(2008 test – question 33)

- molecules
- chemicals
- a vibration
- a magnetic field**

22. The magnetic fields of any magnet are greatest —

(2004 test – question 21)

- around the middle
- around the poles**
- around only the south pole
- around only the north pole

23. Which of these can most easily produce magnetic fields?

(2001 test – question 27)

- Sunlight
- Wind
- Electricity**
- Flowing water

24. Which of these correctly shows what happens when two magnets are placed side by side? (d)

(2009 test – question 6)



# Energy Forms & Transformations

25. Which energy transformation most likely occurs in a steam iron?

(2011 test – question 22)

- a. **Electrical energy changes to heat energy.**
- b. Electrical energy changes to sound energy.
- c. Mechanical energy changes to heat energy.
- d. Mechanical energy changes to light energy.



26. Which form of energy is being used by the toaster?

(2007 test – question

5)

- a. Chemical
- b. **Electrical**
- c. Solar
- d. Nuclear



27. The energy used to move most bicycles is an example of what type of energy?

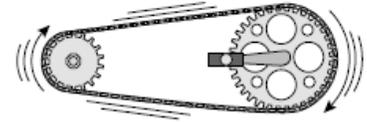
(2004 test – question 3)

- a. Electrical
- b. **Mechanical**
- c. Chemical
- d. Nuclear

28. Which form of energy is best shown in this picture?

(2003 test – question 1)

- a. **Mechanical**
- b. Electrical
- c. Chemical
- d. Nuclear



29. Which item is designed to change electrical energy into heat energy?

(2010 test – question 31)

- a. Alarm clock
- b. **Hand dryer**
- c. Fan
- d. Telephone

30. An electric motor is designed to turn electrical energy into —

(2009 test – question 36)

- a. solar energy
- b. potential energy
- c. static electricity
- d. **mechanical energy**

31. When in operation, this tool transforms electrical energy mostly into —

(2006 test – question 23)

- a. chemical energy
- b. solar energy
- c. sound energy
- d. **mechanical energy**

