

Electricity Magnetism Test Review

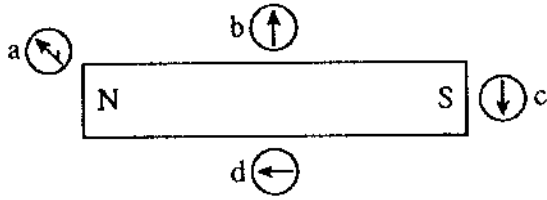
Modified True/False *Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.*

1. A conductor is a material that doesn't allow electrons to flow through it easily. _____
2. A lightning bolt occurs when billions of protons are transferred at the same time.

3. The rearrangement of electrons on a neutral object caused by a nearby charged object is called charging by induction. _____
4. Voltage difference is measured in amperes. _____
5. The unit used to measure current is the volt. _____

Multiple Choice *Identify the choice that best completes the statement or answers the question.*

6. Which of the following is a device designed to open an overloaded circuit and prevent overheating?
a. circuit breaker b. magnet c. resistor d. transformer
7. Current that does NOT reverse direction is called _____.
a. alternating current b. circuit current c. direct current d. magnetic current
8. The location of the strongest magnetic forces is the _____.
a. electromagnets b. magnetic domains c. magnetic fields d. magnetic poles
9. Current that reverses direction in a regular pattern is called _____.
a. alternating current b. circuit current c. direct current d. magnetic current
10. The region around a magnet where the magnetic forces act is the _____.
a. electromagnetic b. magnetic domain c. magnetic field d. magnetic pole pole
11. Objects that keep their magnetic properties for a long time are called _____.
a. electromagnets b. magnetic domains c. permanent magnets d. temporary magnets
12. The function of an electric motor is to change _____.
a. chemical energy to electrical energy c. electrical energy to mechanical energy
b. electrical energy to chemical energy d. mechanical energy to electrical energy
13. The function of a generator is to change _____.
a. chemical energy to electrical energy c. electrical energy to mechanical energy
b. electrical energy to chemical energy d. mechanical energy to electrical energy
14. The current that flows in an electric circuit carries _____.
a. chemical energy b. mechanical energy c. thermal energy d. electrical energy
15. There is a repulsive force between two charged objects when
a. charges are of unlike sign. c. charges are of like sign.
b. they have the same number of protons. d. they have the same number of electrons.
16. There is an attractive force between two charged objects when
a. charges are of unlike sign. c. charges are of like sign.
b. they have the same number of protons. d. they have the same number of electrons.



17. Which of the compass needle orientations in the figure above might correctly describe the magnet's field at that point?
- a. a b. b c. c d. d

Matching

Match each term with the correct statement below.

- | | |
|--------------------|------------------|
| a. conductor | d. fuse |
| b. insulator | e. electroscopes |
| c. circuit breaker | |

- ___ 18. contains a piece of metal that melts if the current becomes too high
- ___ 19. allows electrons to move through it easily
- ___ 20. contains a piece of metal that bends when it gets hot
- ___ 21. detects the presence of electric charges
- ___ 22. does not allow electrons to move through it easily

Completion Complete each statement.

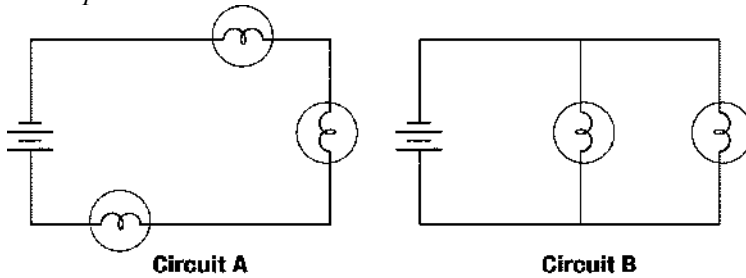


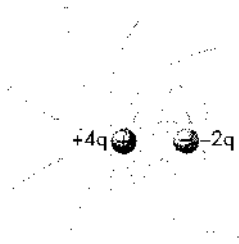
Figure 7-1

23. In Figure 7-1, circuit _____ is wired in series.
24. In Figure 7-1, circuit _____ is wired in parallel.
25. In Figure 7-1, circuit _____ represents the way that homes are usually wired.
26. In Figure 7-1, circuit _____ is the type of circuit that causes an entire string of decorative lights to go out when one of the bulbs burns out.

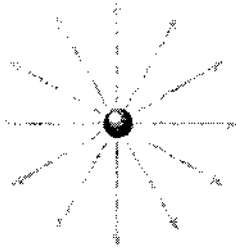
Short Answer

27. Describe how you could quickly determine whether a string of lights is wired in series or in parallel.
28. Explain why clothes stick together when they are removed from a drier.
29. What is static electricity?
30. Is there any negative charge on a positively charged object? Why or why not?
31. How is electric current different from static electricity?
32. Why is a fuse an important device in an electrical circuit?
33. List two materials that are conductors and two materials that are insulators.

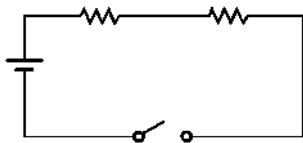
34. A single switch controls three lights. What types of circuit could have been used to connect the switch to the lights?



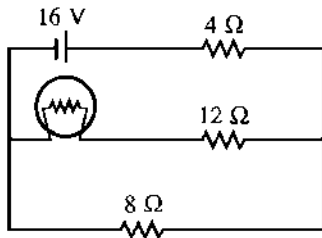
35. In the figure shown above, why do only half of the lines originating from the positive charge terminate on the negative charge?



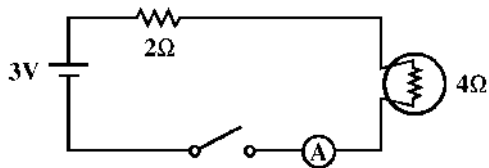
36. Is the charge shown in the figure above positive or negative?
 37. What is the difference between a conductor and an insulator?



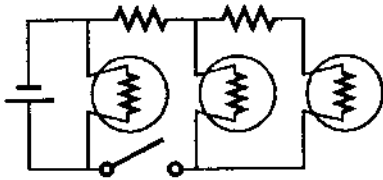
38. Identify the types of elements in the schematic diagram above and the number of each type.



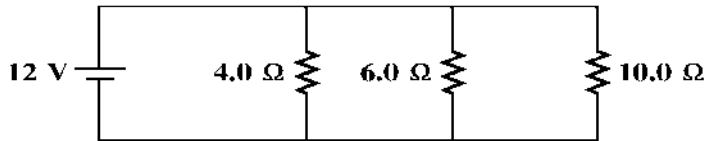
39. Identify the types of elements in the schematic diagram above and the number of each type.
 40. Draw a schematic diagram that contains three identical resistors and one battery in a series circuit.



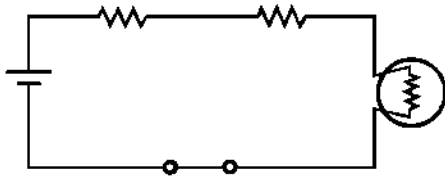
41. Is a current flowing in the schematic diagram above? Explain your answer.



42. Which bulb(s) will have a current in the schematic diagram above?



43. Does the schematic diagram above represent a series or parallel circuit?

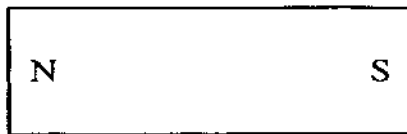


44. Does the schematic diagram above represent a series or parallel circuit?



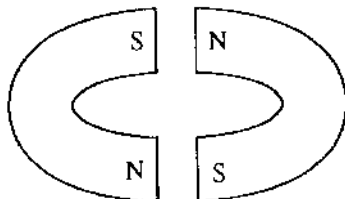
45. Will the magnets in the figure above attract or repel each other?

46. Draw the magnetic field lines between the two magnets in the previous question.

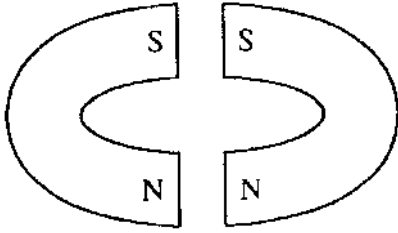


47. Will the magnets in the figure above attract or repel each other?

48. Draw the magnetic field lines between the two magnets in the previous question.



49. Will the magnets in the figure above attract or repel each other?



50. Will the magnets in the figure above attract or repel each other?

True/False *Indicate whether the statement is true or false.*

51. When you bring the south ends of two magnets close together, they repel each other.
52. The strength of an electromagnet can be increased by reducing the number of turns on the wire coil.
53. An electric motor is used to change mechanical energy into electrical energy.
54. Moving a wire through a magnetic field creates an electrical current in the wire.
55. Paper clips and other objects that contain iron can become temporary magnets.

Electricity Magnetism Answer Section

MODIFIED TRUE/FALSE

1. F, An insulator
2. F, electrons
3. T
4. F, volts
5. F, ampere

MULTIPLE CHOICE

6. A
7. C
8. D
9. A
10. C
11. C
12. C
13. D
14. D
15. C
16. A
17. A

MATCHING

18. D
19. A
20. C
21. E
22. B

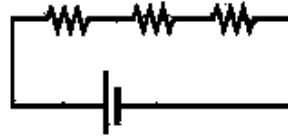
COMPLETION

23. A
24. B
25. B
26. A

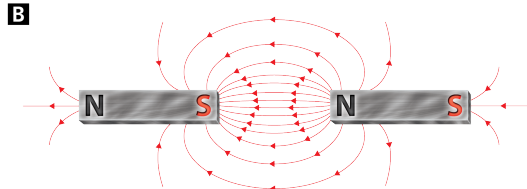
SHORT ANSWER

27. Remove one bulb. If it's a series, all the lights will go out; if it's parallel, the remaining lights will stay lit.
28. Some clothes lose electrons to become positively charged. Others gain electrons to become negatively charged. The opposite charges attract.
29. accumulation of excess electric charges on an object
30. yes; positively charged only means an excess of positive charge; it does not mean that there is no negative charge
31. Electric current involves the flow of charge, whereas static electricity involves an accumulation of excess charge.
32. A fuse will stop the current if it becomes too high for the wires to handle, preventing fires.

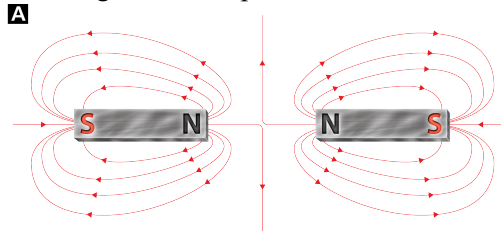
33. conductors: metals, copper, silver; insulators: plastic, wood, rubber, glass
34. all lights in a series circuit, or the lights are in a series circuit with the switch but not necessarily in a series circuit with each other
35. Because the positive charge is twice as great as the negative charge.
36. positive
37. A conductor has a low resistance because electrons can flow easily under the influence of an electric field. An insulator has a high resistance because the charges inside the insulator do not move easily.
38. two resistors, one battery, one switch
39. three resistors, one battery, and one light bulb



- 40.
41. No, because the switch is open, so there is not a closed-loop path for the electrons to follow.
42. Only the first light bulb will light. The other two bulbs are beyond the open switch and, therefore, will not receive current.
43. parallel circuit
44. series circuit
45. The magnets will attract each other.



- 46.
47. The magnets will repel each other.



- 48.
49. The magnets will attract each other.
50. The magnets will repel each other.

TRUE/FALSE

51. T
52. F
53. F
54. T
55. T

