#### **Electricity Study Guide**

1. A(n) \_\_\_\_\_\_ circuit is one in which no charges flow through any device connected to the circuit.

C. Open

A. parallel B. series

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D. Closed

2. Which choice correctly identifies the symbols shown in the schematic diagram?



A. one open switch, one battery, and three resistors

- B. one open switch, one battery, and three lamps
- C. one closed switch, one battery, and three resistors

D. one closed switch, one capacitor, and three lamps

3. In which of the following circuits can current from the battery be in all of the devices to make a completely closed circuit? A. B.









4. Each device in a series circuit has the same , and each device in a parallel circuit has the same

A. current, voltage B. resistance, voltage

5. Suppose that in a particular circuit, as many current paths to a power source exist as do devices. The circuit most likely consists of

C. current, resistance

D. voltage, current

A. only parallel circuits.

B. only series circuits.

C. a combination of parallel and series circuits.

D. an arrangement that is impossible to determine from the given information.

6. An electric toaster has a resistance of 9.75 Ωand is designed to operate on 115 V. What is the power rating of the toaster?A. 12.0 WB. 1360 WC. 139 WD. 1120 W

7. A light bulb has a power rating of 150 W. What current flows through the light bulb when it is connected to a 230 V power source?

A. 97.8 A B. 1.53 A C. 0.652 A D. 353 A

8. Which of the following reasons for using circuit breakers and fuses is *not* accurate?

A. Circuit breakers and fuses protect a circuit from overheating when a load fails.

B. Circuit breakers and fuses prevent a circuit from operating when the circuit draws too much current.

C. Circuit breakers and fuses control the amount of current that a load draws.

D. Circuit breakers and fuses prevent the connecting wires in a circuit from overheating in case of a short circuit.

9. Batteries convert \_\_\_\_\_\_ energy into electrical energy.

A. light B. thermal C. chemical D. mechanica	-		57		
	Α.	. light	B. thermal	C. chemical	D. mechanical

10. A flow of electrical cha A. current.	arges is called B. voltage.		C. potential difference.	D. ampere.				
11 oppo A. Ohm's	se(s) the movement B. Voltage	of charge throug	h a conductor. C. Charge	D. Resistance				
12. The current through a A. 339 $\Omega$	a light bulb is 0.345 B. 40.4 $\Omega$	A when connected	d to 117 V. What is the resistance o C. 2.95 × $10^{-3} \Omega$	f the light bulb? D. 49.3 $\Omega$				
<ul><li>13. Which of the following</li><li>A. making the conductor s</li><li>C. changing the temperat</li></ul>	actions is least like shorter ure of the conducto	ely to affect the res	sistance of a conductor? B. using a conductor made from a D. rolling up the conductor	different material				
14. Which of the following A. copper, glass, and iron C. wood, steel, and water	g includes only mate	erials that are insu B. paper, plastic, D. aluminum, silv	ılators? and rubber er, and gold					
<ul> <li>15. A superconductor is a material that</li> <li>A. has almost no resistance below a certain temperature.</li> <li>B. can carry very large currents.</li> <li>C. has almost no resistance above a certain temperature.</li> <li>D. has almost no resistance at any temperature.</li> </ul>								
16. A material with a sma A. metal.	all number of electro B. semiconductor	ons that are free to	o move is most likely to be classified C. insulator.	l as a(n) D. conductor.				
17. Sometimes, if you sli because your body has a A. electric discharge	de across the seat o cquired an B. electric field	of a car and then t from slidin	ouch the door handle, you will feel a g across the seat. C. electric charge	a slight shock. This happens D. induced charge				
18. The protons in the nu	icleus of an atom ar	nd the electrons or	rbiting the nucleuse	each other because they				
A. repel, like	B. repel, opposite		C. attract, opposite	D. attract, like				
<ol> <li>The atoms of objects</li> <li>A. lost electrons.</li> </ol>	that are positively on B. gained electron	charged have ns.	C. lost protons.	D. gained protons.				
20. Three common ways A. friction.	to charge an object B. repulsion.	t are conduction, i	nduction, and C. insulation.	D. deflection.				
<ul><li>21. A negatively charged sheet of plastic will stick to a glass window by</li><li>A. taking electrons from the glass.</li><li>B. taking protons from the glass.</li><li>C. giving electrons to the glass.</li><li>D. polarizing the glass.</li></ul>								
<u>Magnetism Study G</u>	uide							
1. A material that is difficu	ult to magnetize but	once magnetized	does not easily lose its magnetism	is classified as				
A. permanent.	B. soft.		C. hard.	D. brittle.				
2. When the poles of two magnets are brought together and they attract each other,								
A. both poles are north po C. the poles are different.	bles.		B. both poles are south poles. D.the poles are the same.					
3. When a magnet is brok	en into two pieces,	the result will be						

A. one piece with a north pole and one piece with a south pole. C. two pieces that are no longer magnets.

- B. that each piece will have a north and a south pole.D. one piece that is a magnet and one piece that is not.

4. A magnetic A. force E	_ surrounds a magnet. 3. field	C. pole	D. charge			
5. The magnetic field of a m	agnet					
A. is weakest at its south po C. exists only outside the ma	le. agnet.	B. becomes stronger with increasin D. depends on the material from wh	g distance. nich the magnet is made.			
<ul><li>6. A magnetized pin floating</li><li>A. toward the center of the E</li><li>C. in a north-south direction</li></ul>	in water will point Earth.	B. up and down. D. in an east-west direction				
7. Which of the following sta A. The Earth has poles like the C. The magnetic south pole	tements about Earth's magnetic fie those of a bar magnet. B. is located in the northern hemisphe	eld is false? The Earth's magnetic poles are loca ere. D. The Earth's poles periodica	ted at the geographic poles. ly change polarity.			
8. Suppose a magnet is sup behavior of this magnet at E	ported so that it is free to rotate in a arth's surface?	a vertical plane. Which of the followi	ng best describes the			
<ul><li>A. The magnet will align itself perpendicular to the surface at the equator.</li><li>B. The magnet will align itself parallel to the surface at the poles.</li><li>C. The magnet will align itself parallel to the surface at the equator.</li><li>D. The magnet will not align itself in any particular direction.</li></ul>						
9. When a compass is place	ed close to a current-carrying wire,	the compass needle will				
A. align itself parallel to the C. align itself to form a tange	length of the wire. ent to the wire.	B. point toward the wire. D. do nothing.				
10. Current is flowing toward	d you in a wire. As you look along t	he length of wire, the direction of the	magnetic field will be			
<ul><li>A. toward you along the wire.</li><li>B. upward.</li><li>C. downward on the left side and upward on the right side of the wire.</li><li>D. downward on the right side and upward on the left side of the wire.</li></ul>						
11. What happens when a current-carrying conductor is formed into a loop?						
A. The magnetic field of the C. A magnetic field is produced	loop becomes zero. ced.	B. The current in the wire decrease D. The magnetic field of the loop re	s. verses direction.			
12. Which of the following de A. converting the solenoid in C. adding more loops of wire	bes <i>not</i> increase the strength of a s nto an electromagnet e	colenoid's magnetic field? B. changing the direction of current D. increasing the amount of current	flow in the wire			
<ul><li>13. Which of the following statements about a magnetic domain is false?</li><li>A. A magnetic field can change the alignment of domains.</li><li>B. All magnetic domains contain iron atoms.</li><li>C. Most electrons in the atoms of a domain spin in the same direction.</li><li>D. The atoms in a domain align themselves to other atoms.</li></ul>						
14. In both a motor and a ga A. rotates.	alvanometer, a magnetic field exert 3. has current passing through it.	s force on a coil of wire only when th C. is insulated. D. m	e coil oves in the magnetic field.			
15. A wire is placed between A. wire will E D. move toward the south p	n the poles of a magnet. When elec 3. not move. ole of the magnet.	ctric current flows through the wire, t C. move toward the north pole of th E. move at a right angle to both pol	he e magnet. es of the magnet.			
16. Electric current is not pr	oduced in a wire loop when					
A. the wire loop rotates in a C. the wire loop is held in a	magnetic field. magnetic field.	B. magnet moves toward the wire lo D. the magnetic field near a wire loo	pop. op is decreasing.			

17. A magnet and a coil of wire are used to generate an electric current. Which of the following actions will *not* affect the amount of current produced?

- A. adding more turns of wire in the coil
- B. moving the magnet faster
- C. moving the coil instead of the magnet
- D. changing the direction the magnet moves relative to the coil

18. Which of the following statements regarding a charge moving in a magnetic field is true?

- A. A magnetic field does not affect a charge moving through it.
- B. The force on a charge moving through a magnetic field is greatest when it moves parallel to the magnetic field.
- C. The force on a charge moving through a magnetic field is greatest when it moves at a right angle to the magnetic field.
- D. The force on a charge moving through a magnetic field is zero when it moves perpendicular to the magnetic field.

19. A force is exerted on a charge when it moves through a magnetic field. The direction of the force exerted on the moving charge is \_\_\_\_\_\_ to the magnetic field and \_\_\_\_\_\_ to the direction of charge movement.

- A. perpendicular, perpendicular
- B. parallel, parallel
- C. perpendicular, parallel
- D. parallel, perpendicular

20. The electrical energy produced by a generator comes from

- A. the magnetic field.
- B. the coil.
- C. the magnet.
- D. mechanical energy.

21. Which of the following actions is not a reason that a generator produces electric current?

- A. the magnetic field moving charges in the wire
- B. the coil rotating
- C. the coil crossing magnetic field lines
- D. magnets within the generator

22. Which of the following statements about EM waves is incorrect?

- A. EM waves are transverse waves.
- B. EM waves cannot travel through a vacuum.
- C. EM waves have an oscillating magnetic field.
- D. EM waves have an electric field that is perpendicular to a magnetic field.

23. A transformer does not

- A. increase the voltage of a current.
- B. decrease the voltage of a current.
- C. operate using direct current.
- D. operate using alternating current.