





Name: _____

Electrical Engineering

1. Indicate whether the following machines come under the field of electricity or electronics.

Machine	Field	
	Electricity	Electronic
Toaster	X	
Flat Screen TV		X
Dryer	X	
Digital Camera		X
DVD Player		X
Microwave	X	X


2. Draw the following symbols for circuit components.

Symbol	Name
	Electrical outlet or Source of AC (alternating current)
	Light bulb
 <small>how.equipment.works.com</small>	Battery
	Source of DC (direct current)

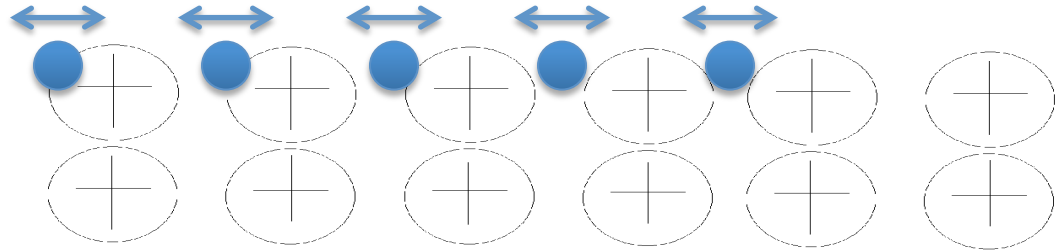
3. Give an example of a source of direct current.

Answers may vary. Ex. A battery

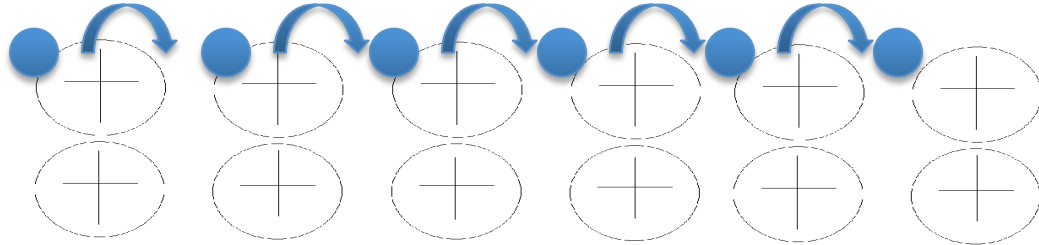
4. Indicate the direction of the electrons' movement with arrows.

 = electron

a. In the case of an alternating current



b. In the case of a direct current



5. Name three electrical functions and describe them.

You can choose from: power supply, insulation, conduction, control, protection, and transformation of energy. See your notes for these definitions.

6. To which power source are the following referring to?

a. Device with sockets designed to receive the prongs of a plug

_____ Electrical outlet _____

b. Electronic device that generates an electric current when exposed to light

_____ photovoltaic cell (solar panel) _____

c. Device permanently connected to an electrical network Electrical outlet

d. Device that transforms the energy from a chemical reaction into electrical energy

_____ battery _____

7. In an electrical or electronic circuit, each component fulfils specific function. Once the power supply is taken care of, the conduction, insulation and circuit protection functions remain.




a. Which component primarily performs the conduction function?

_____ wire _____

b. What material is this component usually made of?

_____ metals such as copper _____

8. Briefly describe the advantages and disadvantages of various power supplies

Source	Advantages	Disadvantages
<p>Battery</p> 	<p><i>Photovoltaic cell. Answers will vary. Examples:</i></p> <p><i>Advantages: It can power equipment in isolated areas, it does not cause greenhouse gas emissions, and it has a long life span.</i></p> <p><i>Disadvantages: It depends on sunny conditions, and it is expensive.</i></p>	
<p>Electrical Outlet</p> 	<p><i>Battery. Answers will vary. Examples:</i></p> <p><i>Advantage: It is portable.</i></p> <p><i>Disadvantages: It has a limited life span, and it is a source of pollution in landfills.</i></p> <p><i>Electrical outlet. Answers will vary. Examples:</i></p> <p><i>Advantages: It is a stable power supply, and it generates little greenhouse gas (if it depends on hydroelectricity).</i></p> <p><i>Disadvantages: Appliances cannot be moved far from the wall outlet, and they stop working in the event of a power outage. Developing hydroelectricity often involves flooding vast areas of land.</i></p>	
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9. Name an advantage circuit breakers have over fuses.

Circuit breakers do not need to be replaced, the switch on the breaker can simply be reset.