**Ch 14 Electrical Engineering** **Exam Review** **Name:**_____

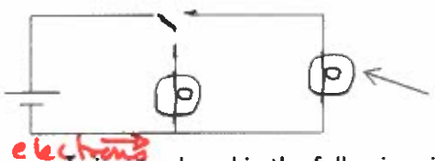
1. Draw a circuit diagram:
   a. Containing one **3V battery** (make sure to indicate the "+" and "-" ends), one single-pole single- throw switch and one light-emitting diode (LED).
   b. Indicate the direction of the electron flow.


2. Another name for a photovoltaic cell is a solar cell.

3. Explain HOW a breaker works.
   - The bimetallic strip heat and bends to break contact when too much current passes through it.
   - Can be reset

4. Explain HOW a fuse works.
   - The filament breaks when too much current passes through it, and the flow of electricity stops
   - Cannot be reset.

5. For the diagram below:
   a. Indicate the direction of the electron flow.
   b. Name the type of switch being used: single pole - double throw
   c. Would a toggle switch or push-button switch work best in this situation? toggle




   d. What is this? incandescent light bulb.

6. Name the type of energy being produced in the following situations:
   a. Light bulbs turn electrical energy into luminous
   b. Heaters turn electrical energy into thermal
   c. Piezoelectric crystals turn electrical energy into mechanical
   d. Electromagnets turn electrical energy into magnetic

7. What is the main function of a capacitor?
   regulate the amount of current.
   (builds charge and released all at once)

8. The following circuit diagram shows a battery, two LEDs and a motor.
   a. Which light lights up when the circuit is running properly? purple
   b. Which light lights up when the battery is inserted in the opposite direction? orange
   c. How many volts does this battery carry? 9V
   d. What stops the misguided electrons from damaging the motor when the battery is inserted incorrectly? Why? The Purple LED because it only allows the current to go one way.