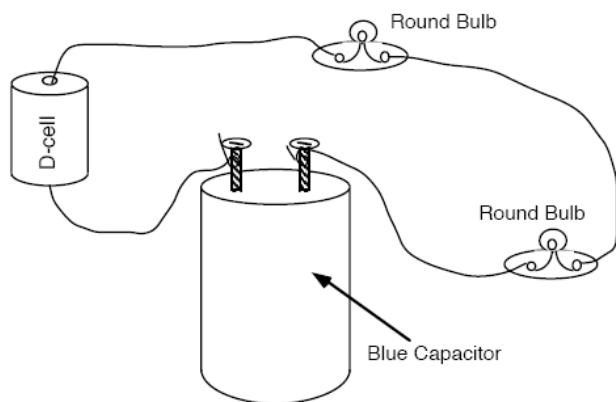


Homework Questions – Section 2

1. Examine the diagram of a circuit below and redraw it as a schematic diagram using appropriate symbols for each part of the circuit.



2. In the circuit at right (Figure 2), suppose the compass is shown deflected at the moment the battery was connected.

a. In words, describe the compass deflection when the battery is removed from the circuit and the free ends of the wires are connected to each other. Explain why this observation makes sense.

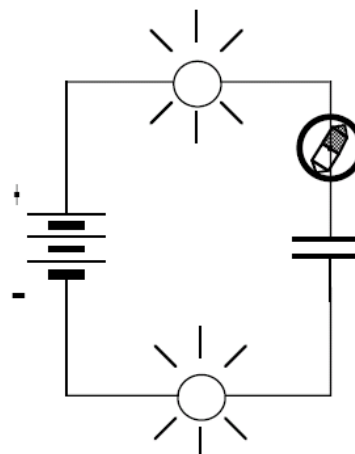


Figure 2

b. Starting with the circuit in Figure 2, if the battery is removed from the original circuit AND the charged capacitor is reversed in the circuit – then – when the free ends of the wires are connected to each other, which way will the compass needle deflect? Explain your reasoning.

c. In Figure 2, how would the compass needle deflect if the orientation of the battery in the original circuit had been reversed? Explain your reasoning.

3. Bulbs A and B light temporarily when the circuit in Figure 1 below is connected. They will also light temporarily if they are connected as shown in Figure 2.

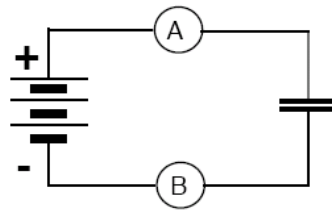


Figure 1

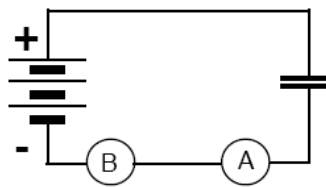


Figure 2

a. Draw arrows on both diagrams to show the movement of charge during charging, while the bulbs are lit.

b. Explain where the charge comes from that moves through the bulbs in Figure 2.

4. Describe two different investigations you could do to determine whether a capacitor is already charged or if it is uncharged. Explain each investigation carefully.

#1:

#2:

5. Below are sketches of possible patterns of charge flow during the interval when the capacitor is charging, and when it is discharging. For each sketch, state whether or not the charge flow arrows shown are correct. Support your answer with observations made in the laboratory.

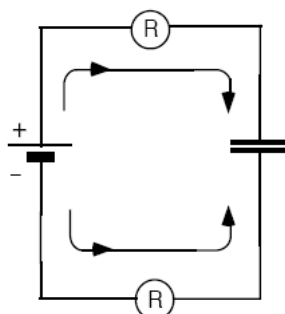


Figure A — Charging

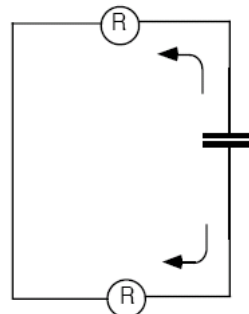


Figure B — Discharging

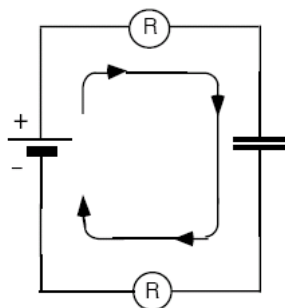


Figure C — Charging

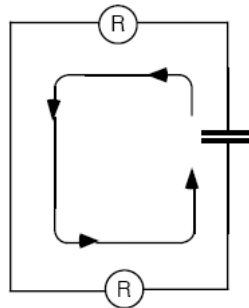


Figure D — Discharging

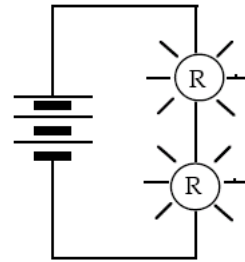
Figure A:

Figure B:

Figure C:

Figure D:

6. In this circuit, what causes the charge to move through the bulbs? Your explanation should include the term "energy".



7. In this circuit, what causes the charge to move through the bulbs? Your explanation should include the term "energy".

