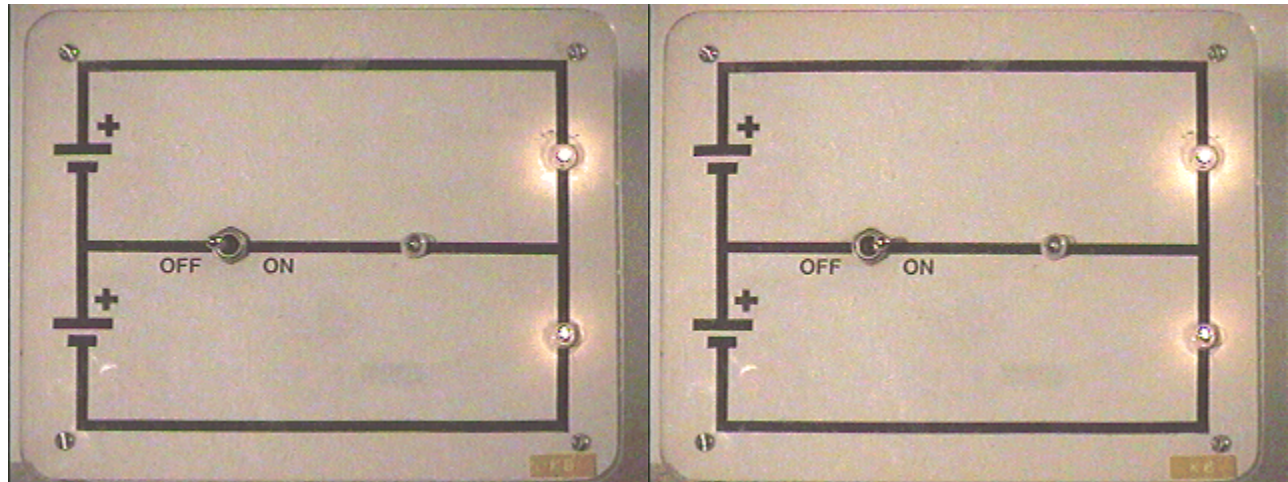


Answer #21

For the first two questions, the answer is (c): the bulbs remain at the same brightness, as can be seen by comparing the two photographs below.



The center bulb will remain OFF. Because the two sides of the circuit connected by the middle wire are at the same potential, no current can flow in that wire, and the bulb will not be lit.

The fundamental feature for this circuit is that the potentials at the points on opposite sides of the switch are the same before the switch is closed. This can be seen by noting that the two batteries are identical and the two light bulbs are identical. Therefore, closing the switch does not do anything to the circuit.

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