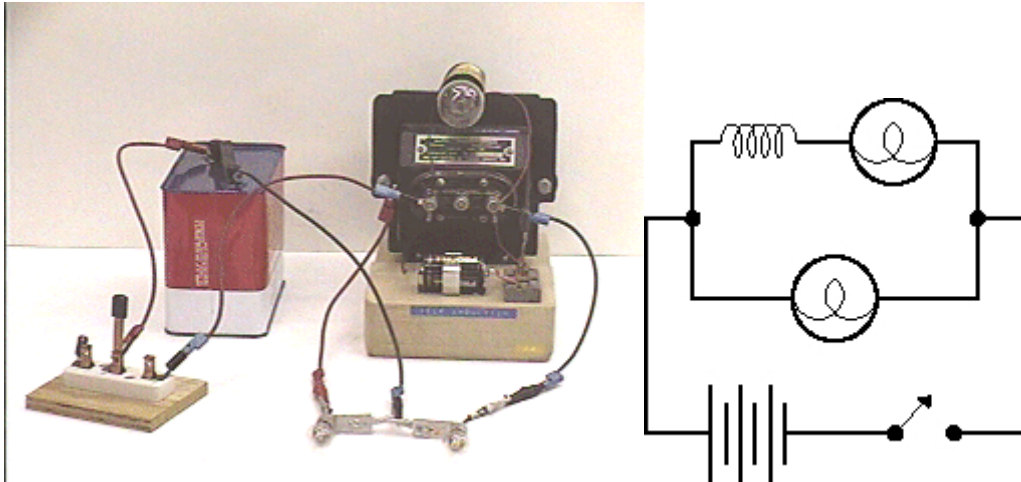


Question #90

A battery is connected to two bulbs. The one at the left front in the photograph below is connected directly through the switch to the bulb, but the one at the right front in the photograph is connected through a large inductor, as per the circuit drawing to the right of the photograph. Note that the small battery and neon bulb mounted onto the inductor in the photograph are used in another unrelated demonstration, so they are not connected into the circuit under discussion here. Actually, an astute observer will notice that the switch is on the positive side of the battery on the photograph but in the negative side of the battery in the circuit drawing, but that does not matter.



When the switch is closed, allowing current to flow, what will the bulbs do? In particular, will they both go on quickly, or will either be delayed? Will either or both remain on long after the switch is closed?

When the switch is closed:

- (a) the bulb at the left will go on faster than the one at the right.
- (b) the bulb at the right will go on faster than the one at the left.
- (c) both bulbs will go on at the same time.

A long time (several seconds, after all time constants are past) after the switch has been closed:

- (a) only the bulb at the left will go out.
- (b) only the bulb at the right will go out.
- (c) both bulbs will go out.
- (d) both bulbs will remain on.

Click here for [Answer #90](#) after November 12, 2001.

[Question of the Week](#)

[Outreach Index Page](#)

[Lecture-Demonstration Home Page](#)



For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address given on the [Lecture-Demonstration Home Page](#).