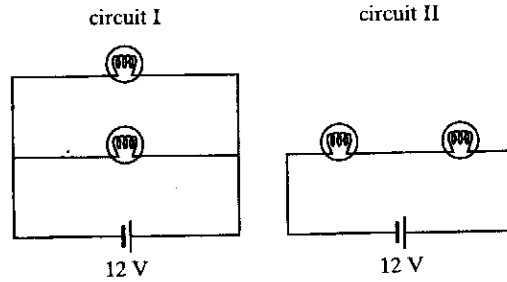


If the four light bulbs in the figure are identical, which circuit puts out more light?



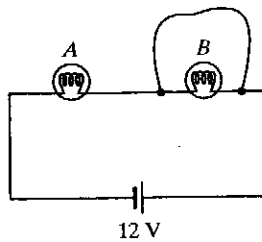
$I_1 = I_2$   
in both cases

1. I.
2. The two emit the same amount of light.
3. II.

$R_1$  in || with  $R_2$  has less equivalent resistance than  $R_1$  in series with  $R_2$

$\Rightarrow$  since  $I = V/R_{eq}$ , total current more for circuit I

Two light bulbs A and B are connected in series to a constant voltage source. When a wire is connected across B as shown, bulb A



$\rightarrow$  when B is shorted out, total resistance gets smaller. Since

$I = V/R,$

more current through A when B is shorted

(bulb B will go out)

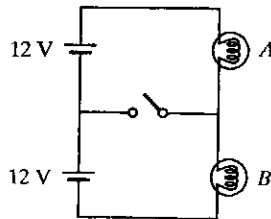
1. burns more brightly.
2. burns as brightly.
3. burns more dimly.
4. goes out.

The light bulbs in the circuit are identical. When the switch is closed,

Before:  $\sum \Delta V_i = 0$

$2(12) - 2IR = 0$

Voltage drop across either A or B is  $IR = 12V$



After switch closed:

$\Delta V$  across either A or B is still 12V



so nothing changes

1. both go out.
2. the intensity of light bulb A increases.
3. the intensity of light bulb A decreases.
4. the intensity of light bulb B increases.
5. the intensity of light bulb B decreases.
6. some combination of 1-5 occurs.
7. nothing changes.