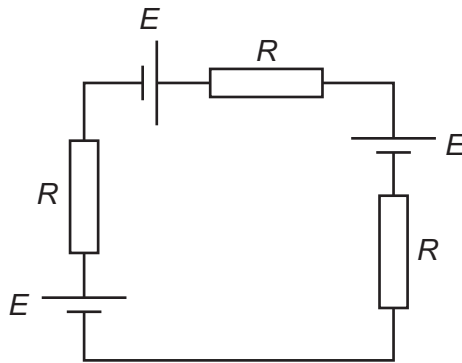
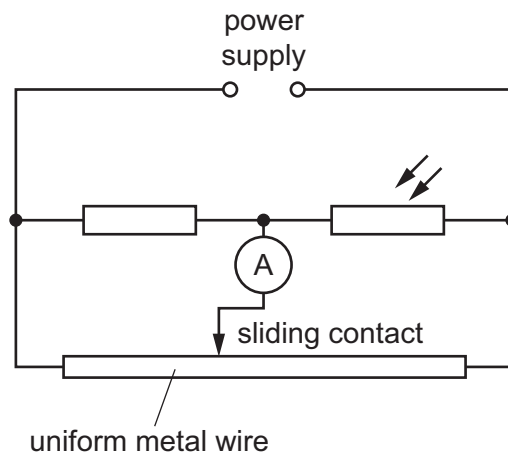


- 36 Three identical cells each have electromotive force (e.m.f.) E and negligible internal resistance. The cells are connected to three identical resistors, each of resistance R , as shown.



What is the potential difference across one of the resistors?

- A 0 B $\frac{E}{3}$ C $\frac{2E}{3}$ D E
- 37 In the potentiometer circuit shown, the reading on the ammeter is zero.



The light-dependent resistor (LDR) is then covered and the ammeter gives a non-zero reading.

Which change could return the ammeter reading to zero?

- A decreasing the supply voltage
 B increasing the supply voltage
 C moving the sliding contact to the left
 D moving the sliding contact to the right

38 What are isotopes?

- A nuclei of different elements with the same number of neutrons
- B nuclei of different elements with the same number of nucleons
- C nuclei of the same element with different numbers of neutrons
- D nuclei of the same element with different numbers of protons

39 A neutron ${}_0^1\text{n}$ is fired at a ${}_{92}^{235}\text{U}$ nucleus. The neutron is absorbed by the nucleus which then splits to form nuclei of ${}_{56}^{141}\text{Ba}$ and ${}_{36}^{92}\text{Kr}$.

What is the number of free neutrons emitted when the ${}_{92}^{235}\text{U}$ nucleus splits?

- A 0 B 1 C 2 D 3

40 A π^+ meson has a charge of $+e$, where e is the elementary charge. It consists of an up quark and one other quark.

What could be the other quark in the π^+ meson?

- A anti-down
- B anti-up
- C bottom
- D charm





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