4.3 Electric Circuits & Electrical Safety

Question Paper

Course	CIE IGCSE Physics
Section	4. Electricity & Magnetism
Topic	4.3 Electric Circuits & Electrical Safety
Difficulty	Medium

Time allowed: 20

Score: /10

Percentage: /100

Question 1

The plug for an electric lamp contains a 3 A fuse. The fuse's job is to protect the lamp if too much current flows.

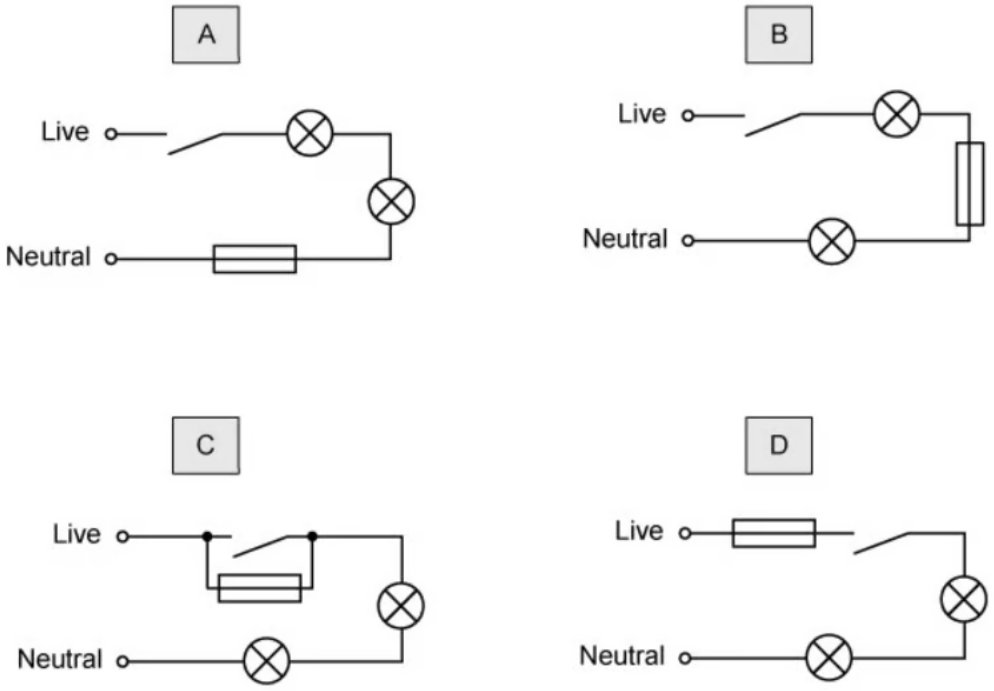
Where is the fuse positioned, and what happens when the fuse does its job?

	Where is it positioned?	What does it do?
A	live wire	reduces the current to 3 A
B	neutral wire	breaks the circuit
C	live wire	breaks the circuit
D	neutral wire	reduces the current to 3 A

[1 mark]

Question 2

Which of the diagrams below shows a fuse which has been correctly connected to a circuit?

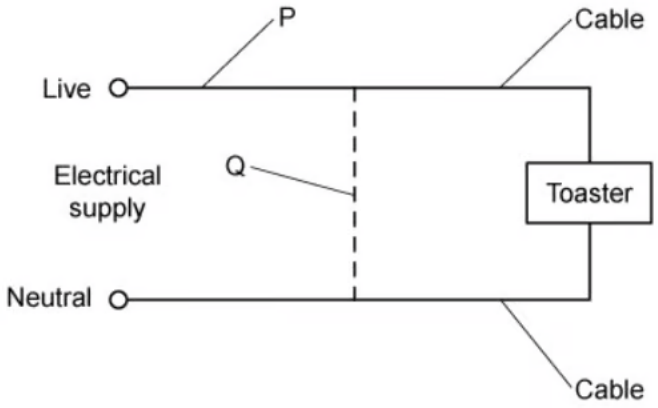


[1 mark]

Question 3

Both fuses and circuit breakers are devices which protect devices from high currents that could cause them to get too hot and catch fire.

The diagram shows two possible positions where a fuse or a circuit breaker could be positioned.



Which location would be suitable for a fuse, and which would be suitable for a circuit breaker?

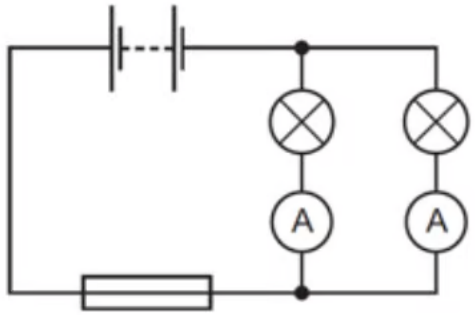
	fuse	circuit breaker
A	P	P
B	P	Q
C	Q	P
D	Q	Q

[1 mark]

Question 4

The diagram shows two bulbs, which have been connected in parallel. A fuse has been included in the circuit.

Each of the ammeters reads 1.2 A.



What fuse should be put in this circuit?

A. 1.0 A

B. 3.0 A

C. 5.0 A

D. 13.0 A

[1 mark]

Question 5

The fuse blows in a kettle, and the owner of the kettle, Brooke Bond decides to replace the fuse. The fuse he takes out has 13 A written on it.

Brooke does not have any fuses in the cupboard with 13 A written on them, so he replaces it with a fuse that has 3 A written on it.

He then switches the kettle on to make a nice cup of tea. What happens?

A. The kettle explodes in a shower of sparks and molten plastic.

B. The fuse does not blow, and the kettle operates normally.

C. The fuse blows and the kettle remains undamaged.

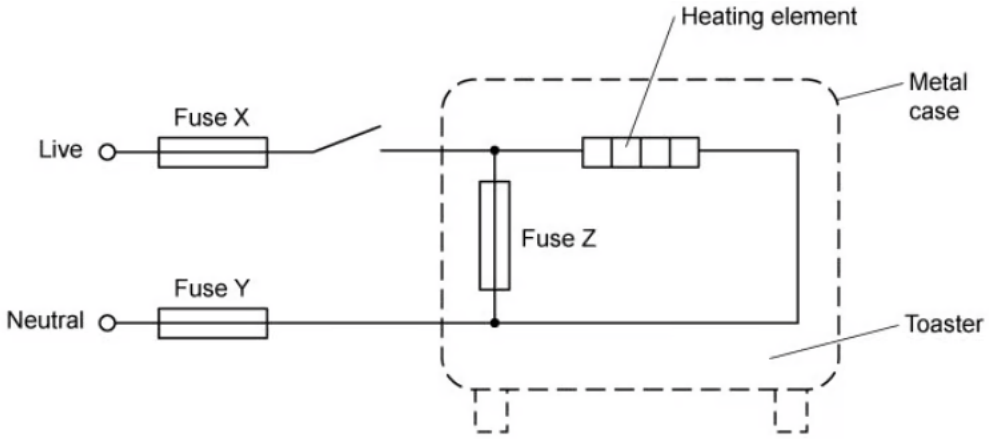
D. The fuse does not blow, but the kettle does not work.

[1 mark]

Question 6

The diagram shows a toaster that has been wired up.

Three fuses have been connected to the toaster, but only one or two have been connected correctly.



Which of the fuses has been positioned correctly?

A. Fuse X and fuse Y

B. Fuse X only

C. Fuse Z only

D. Fuse X and fuse Z

[1 mark]

Question 7

An oven is wired into somebody's kitchen. The oven is protected by a fuse, and functions normally, but the owner notices that the wires that connect the oven to the mains electricity supply get quite hot.

What could be done to reduce the temperature of the wires?

A. Add a circuit breaker to the circuit.

B. Put thicker insulation on the wires.

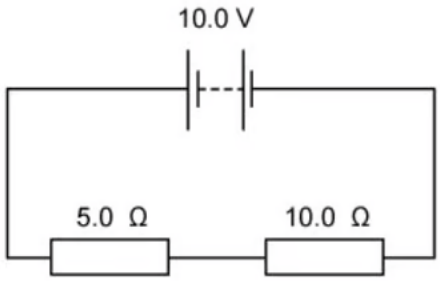
C. Replace the wires with thicker diameter wires.

D. Replace the wires with thinner diameter wires.

[1 mark]

Question 8

The diagram shows two resistors connected in series with a battery.



What is the current through the battery?

A. 1.5 A

B. 150 A

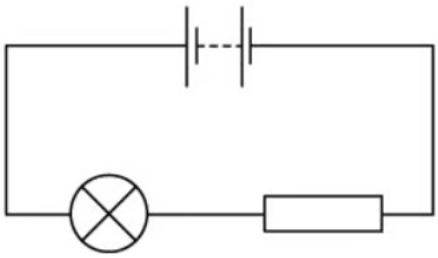
C. 0.67 A

D. 15 A

[1 mark]

Question 9

A book shop owner sets up the circuit below, but they find that the lamp is too dim.



What change can be made to the circuit to increase the brightness of the bulb?

A. Putting another resistor in parallel with the battery.

B. Putting a resistor in parallel with the bulb.

C. Putting another resistor in series with the resistor.

D. Putting another resistor in parallel with the resistor.

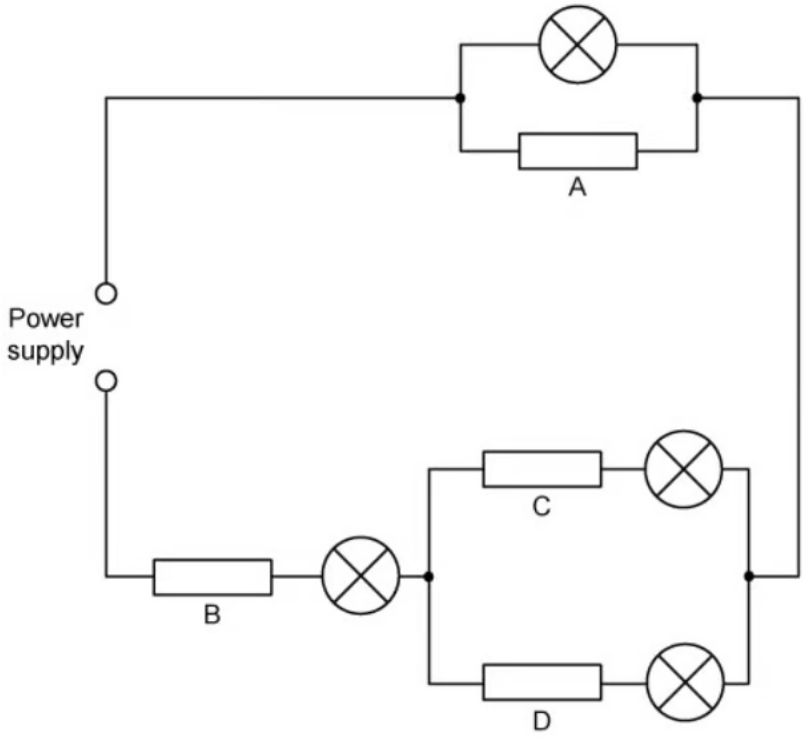
[1 mark]

Question 10

A student sets up the circuit below, it contains four fuses and four bulbs.

She finds that none of the bulbs are lit, but only one of the fuses has blown.

Which fuse has blown?



[1 mark]