

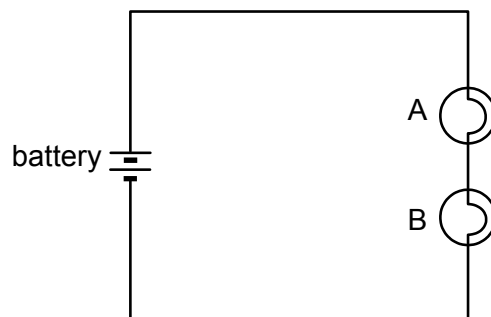
7J Electrical circuits

Assessment for learning...year 7 (level 3-6)

Answer all questions:

Total marks	17
Time allowed	25 mins.

Question 1:



In the circuit above, both the bulbs light up. Suddenly they both go out.

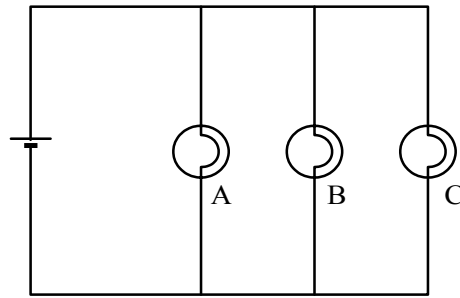
The two bulbs are tested. Bulb A works but bulb B is broken.

(a) Bulb A was not broken but it went out. Why did it go out?

.....
.....

1 mark

In the circuit below, only bulb B is broken.



(b) (i) Does bulb A light up?

Tick the correct box.

Yes

No

1 mark

(ii) Does bulb C light up?

Tick the correct box.

Yes

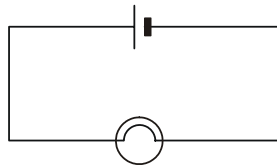
No

1 mark

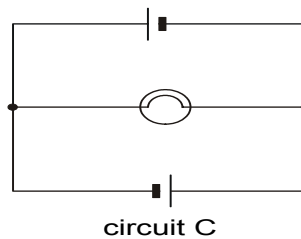
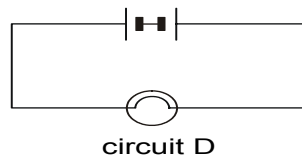
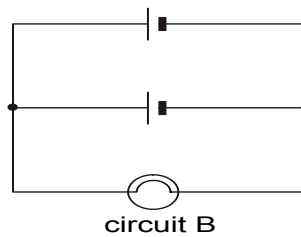
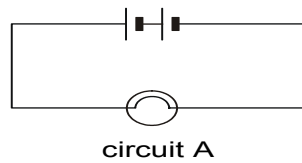
Maximum 3 marks

Question 2:

John connects up the circuit shown below.



The bulb is not bright enough. His friend suggests four circuits which could be used to make the bulb brighter.

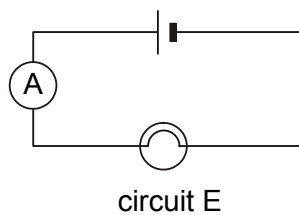


(a) Which is the correct circuit to use: A, B, C or D?

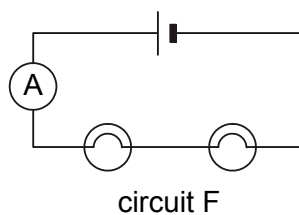
.....

1 mark

Next John sets up circuit E and notes the reading on the ammeter.



He then places another bulb in the circuit, to make circuit F. He notes the ammeter reading in circuit F.



(b) How will the ammeter reading in circuit F compare with that in circuit E?

The reading in F is

1 mark

Explain your answer.

.....

1 mark

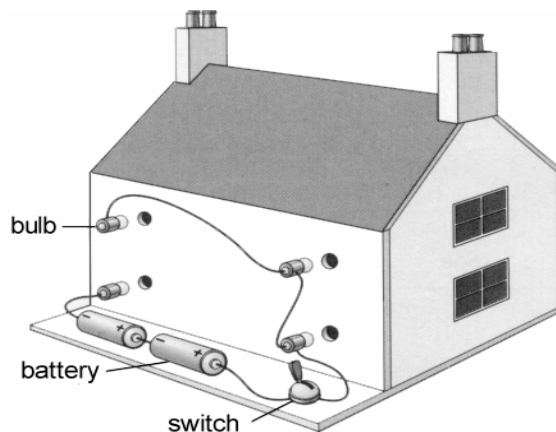
(c) Draw a circuit diagram in which **two** bulbs are lit as brightly as the bulb in circuit E, and the ammeter reading is the same as in circuit E.

1 mark

Maximum 4 marks

Question 3:

Alice connects four light bulbs for her model house, as shown. She puts the bulbs into the holes in the back wall.



(a) When Alice turns the switch on, the bulbs do **not** light up. The batteries are **not** flat. None of the bulbs is broken. Why do the bulbs **not** light up?

.....

1 mark

(b) Alice makes the circuit work. When she turns the switch on, the bulbs are **not** very bright.
 What must Alice add to the circuit to make the bulbs brighter?

.....

1 mark

(c) The four bulbs in the circuit are the same. Which statement is correct?
 Tick the correct box.

Each bulb is the same brightness.

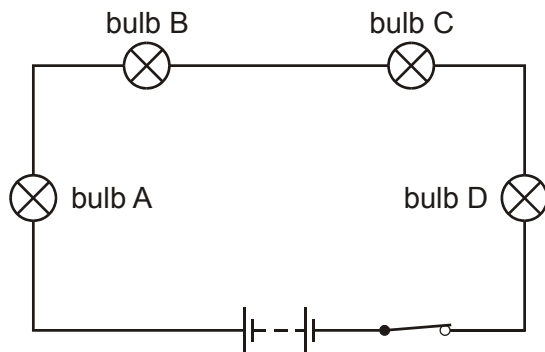
Each bulb is a different brightness.

The bulbs at the top are brighter.

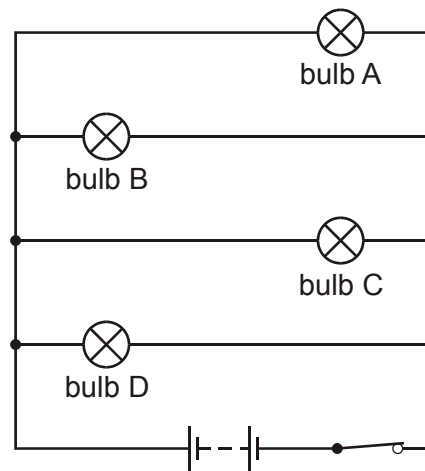
The bulbs at the bottom are brighter.

1 mark

The diagrams show two ways to write the model house.



circuit 1



circuit 2

(d) (i) In circuit 1, bulb B breaks and goes out.
 What happens to the other bulbs in this circuit?

.....

1 mark

(ii) In circuit 2, bulb C breaks and goes out.
 What happens to the other bulbs in this circuit?

.....

1 mark

(e) In circuit 2, Alice adds another switch so that she can turn bulb A off while the other bulbs stay on.

Write the letter S on circuit 2 to show where Alice should add the switch.

1 mark

Maximum 6 marks

Question 4:

Nikki tries to set up four electric circuits.

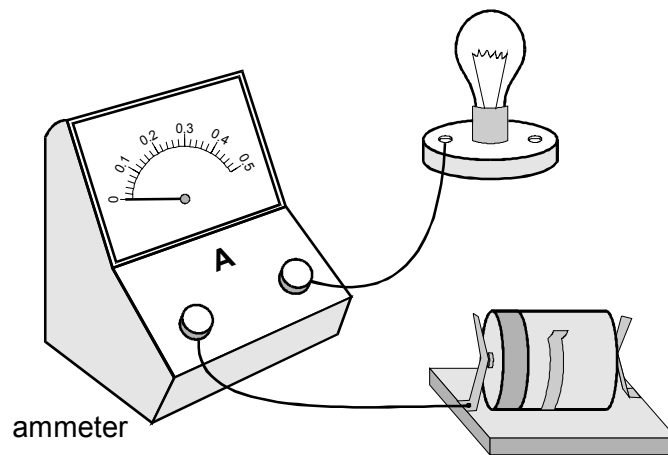


diagram 1

(a) In diagram 1 the ammeter reading is zero. What is wrong with this circuit?

.....
.....

1 mark

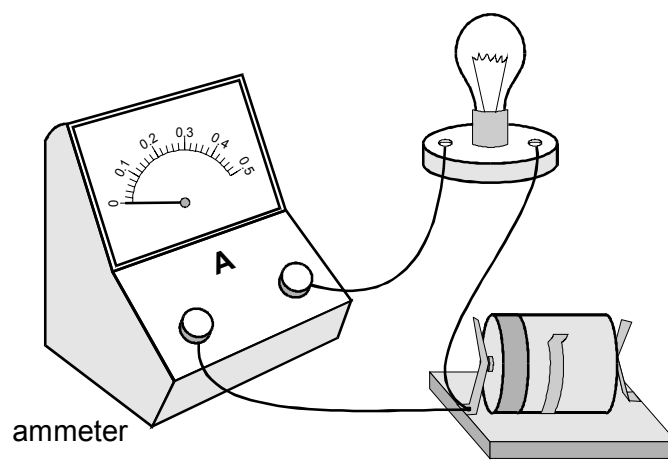


diagram 2

(b) In diagram 2 the ammeter reading is zero. What is wrong with this circuit?

.....
.....

1 mark

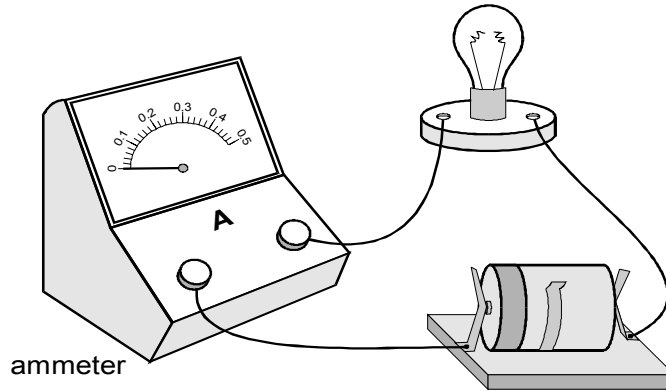


diagram 3

(c) In diagram 3 the ammeter reading is zero. Why is this **not** a complete circuit?

.....
.....

1 mark

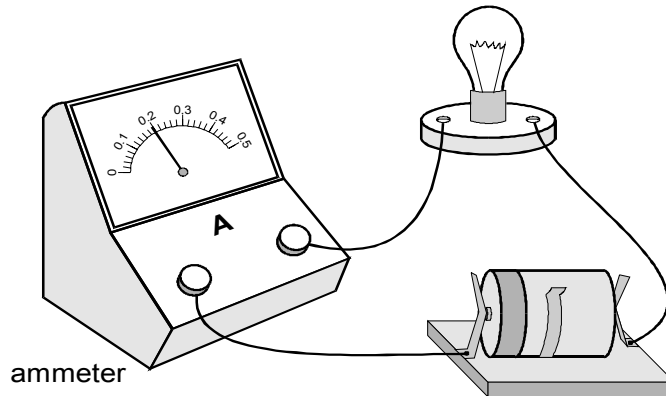


diagram 4

(d) In diagram 4, why is there a reading on the ammeter?

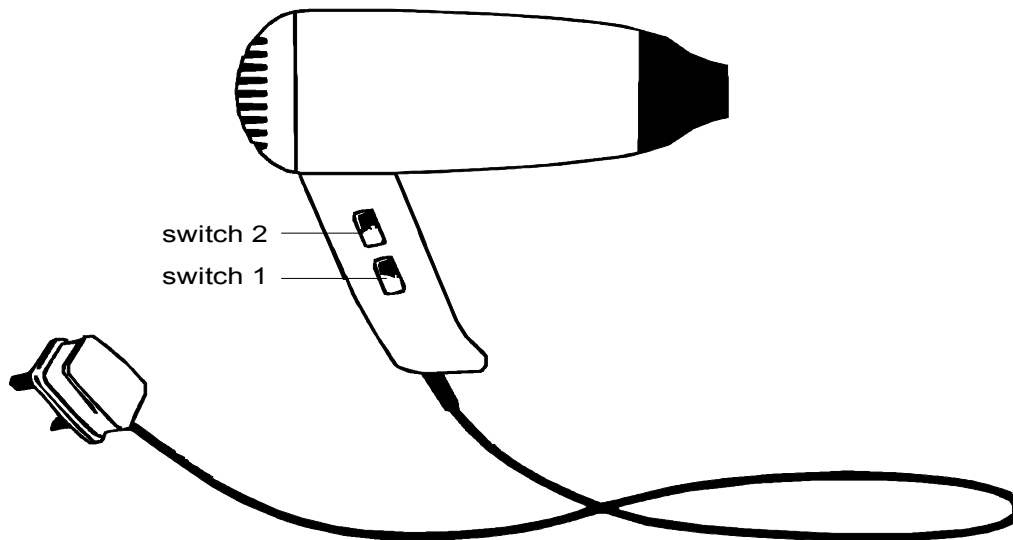
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1 mark

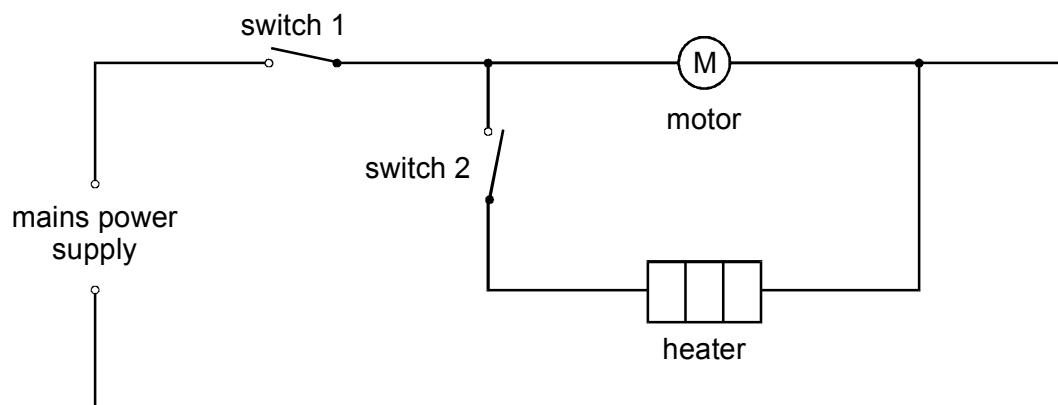
Maximum 4 marks

Question 5:

The drawing shows a hairdryer.



Ben drew the diagram below to show the circuit of the hairdryer.



(a) Which of the switches must be closed for the heater to work? Tick the correct box.

**switch
1 only**

**switch
2 only**

**switches
1 and 2**

**neither switch
1 nor 2**

1 mark

(b) With this circuit, is it possible to have the heater on when the motor is switched off?

.....

Explain your answer.

.....
.....

1 mark

(c) The motor and the heater are both on.
The motor blows air through the hairdryer. If the motor breaks, what would happen to the temperature of the hairdryer?

.....

1 mark

(d) The motor and the heater are both on. Suddenly the wire in the heater breaks.
What effect, if any, will this have on the motor?

.....

1 mark

Maximum 4 marks

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