

NAME:

CELLS AND SIMPLE CIRCUITS

1. Figure 3 below shows a laclanche cell.

Name the chemical substances in the parts labeled. (2mks)

A.....

B.....

2. State the major difference between a dry cell and a wet cell.

(1mk)

3. Explain the difference between a primary and secondary cell or battery

[2m]

4. Sally made an electrical circuit.
It contained two lamps, a variable resistor and a battery joined in series.

(a) (i) Draw the circuit diagram.

(3)

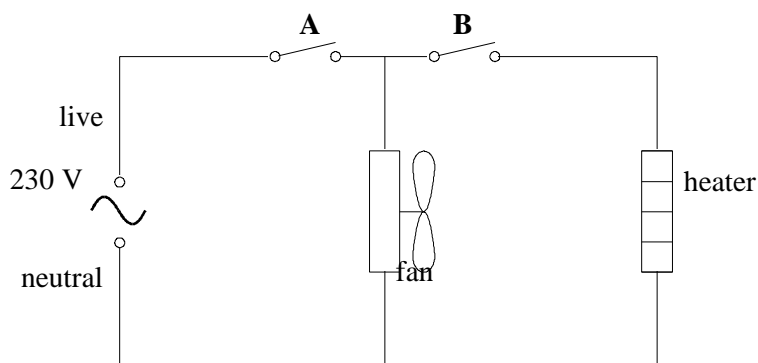
(ii) Use a word from the box to complete the following sentence.

kinetic	potential
thermal	

In the circuit some electrical energy is changed to energy.

(1)

(b) An electric fan can blow out hot or cold air.
The circuit diagram for the heater is shown below,



Suggest what happens when:

(i) Switch A is closed and switch B is open

.....

(1)

(ii) Switch A is open and switch B is closed

.....

(1)

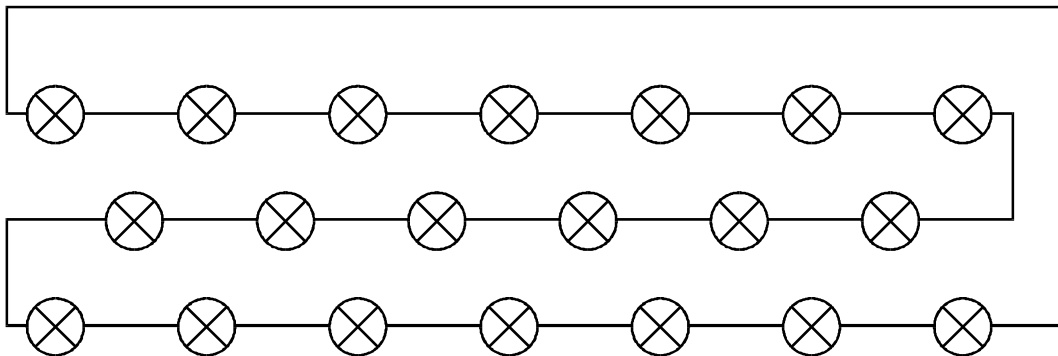
(iii) Switch A and switch B are both closed

.....

(1)

(Total 7 marks)

5. (a) Some Christmas tree lights are connected in series. A typical arrangement consists of twenty lamps connected to the power supply.



(i) If the filament in one of the lamps breaks, all the other lamps go out. Why is this?

.....
.....

(1)

(ii) How does the brightness of the lamps change if another five similar lamps are connected in series?

.....

(1)

(iii) Why does the brightness change in the way you have described in part (ii)?

.....
.....

(1)

(b) Some Christmas tree lights use lamps which have a resistor placed across the filament. This is shown in the diagram.

filament

resistor (R)

- (i) In this case when a filament breaks the other lamps in the series circuit remain on. Why is this?

.....
.....

(1)

- (ii) In a different set of lights, the value of the resistor (R) is much bigger than the resistance of the lamp filament. Explain what happens to the other lamps in this series circuit when one lamp filament breaks.

.....
.....
.....
.....

(2)

(Total 6 marks)

6. In the circuit shown below, the ammeter reads 2A.

What would the ammeter read if it were moved to position?

(a) X; [1m]

(b) Y [1m]

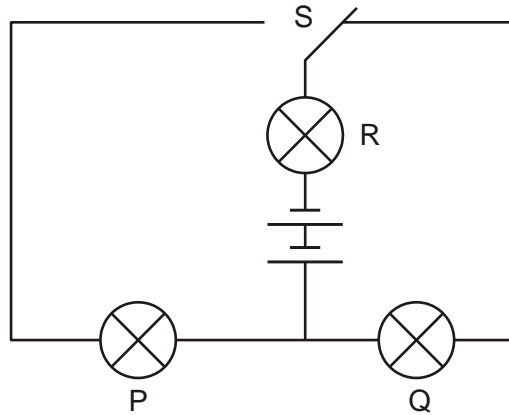
7. Fig. 8.1 represents the circuit that operates two of the lamps on a car.

In the space below, draw the circuit diagram for this circuit, using conventional symbols.

[3]

8. (a) The diagram below shows a circuit with a two-way switch, S.

Rosie puts the switch in the position shown below.



Complete the table below to show if the bulbs are on or off.
Write **on** or **off** for each bulb.

bulb	on or off
P	
Q	
R	

1 mark

(b) Give the name of the part that provides energy for the circuit.

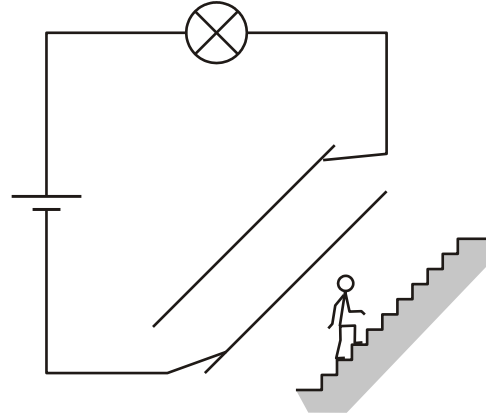
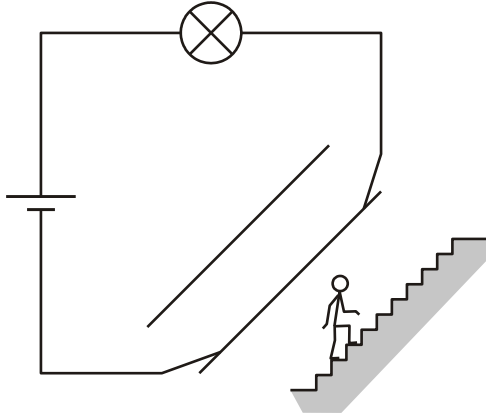
.....

1 mark

(c) The diagrams below show a light-bulb over a staircase of a model house.

There is a two-way switch at the bottom of the stairs and another two-way switch at the top.

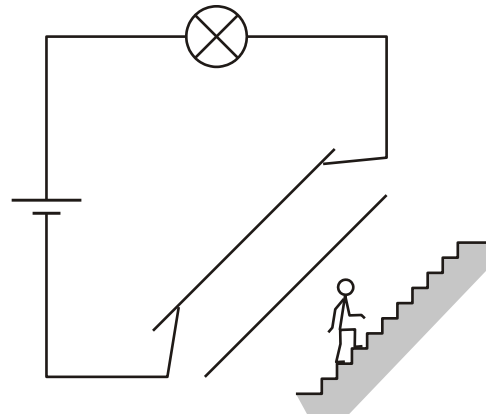
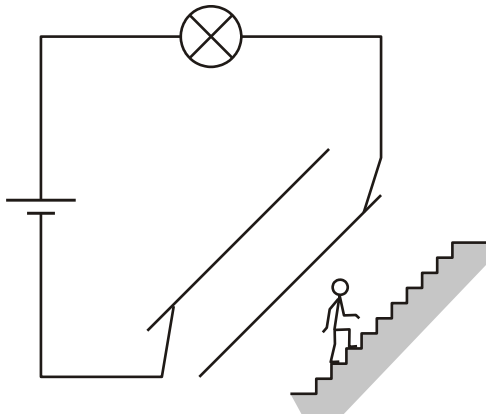
Under each diagram, tick **one** box to show if the bulb is **on** or **off**. The first one has been done for you.



✓

on	<input type="checkbox"/>
off	<input type="checkbox"/>

on	<input type="checkbox"/>
off	<input type="checkbox"/>



on	<input type="checkbox"/>
off	<input type="checkbox"/>

on	<input type="checkbox"/>
off	<input type="checkbox"/>

2 marks
maximum 4 marks