Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Electricity (Standard demand)

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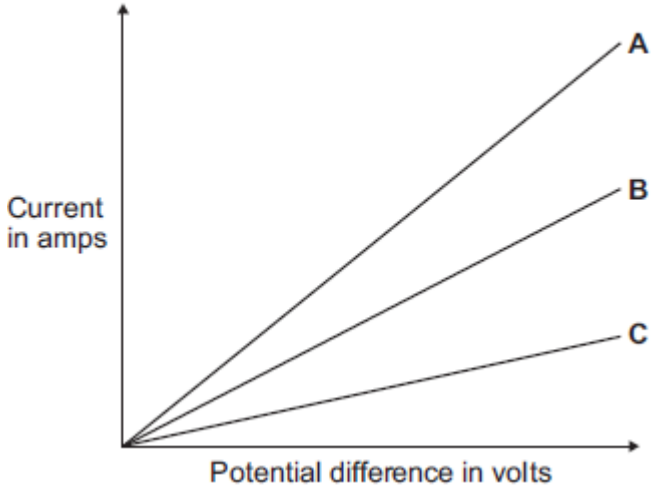
Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

(a) **Figure 1** shows the current−potential difference graph for three wires, **A**, **B** and **C**.

Figure 1



(i) Using **Figure 1**, how can you tell that the temperature of each wire is constant?

_____

_____

(1)

(ii) Which **one** of the wires, **A**, **B** or **C**, has the greatest resistance?

Write the correct answer in the box. ☐

Give a reason for your answer.

_____

_____

_____

(2)

(b) A student measured the resistance of four wires.

The table below shows the resistance of, and other data about, each of the four wires, **J**, **K**, **L**

and **M**.

Wire	Type of metal	Length in cm	Diameter in mm	Resistance in …….
J	copper	50	0.17	0.36
K	copper	50	0.30	0.12
L	copper	100	0.30	0.24
M	constantan	100	0.30	7.00

(i) The last column of the table should include the unit of resistance.

What is the unit of resistance?

_____

(1)

(ii) The resistance of a wire depends on many factors.

Look at the table. Which **two** wires from **J**, **K**, **L** and **M** show that the resistance of a wire depends on the **length** of the wire?

Wire ☐ and wire ☐

Give a reason for your answer.

_____

_____

_____

(2)

(iii) A student looked at the data in the table and wrote this conclusion:

'The resistance of a wire depends on the type of metal from which the wire is made.'

The student could **not** be certain that her conclusion is true for **all** types of metal.

Suggest what extra data is needed for the student to be more certain that the conclusion is correct

_____

_____

_____

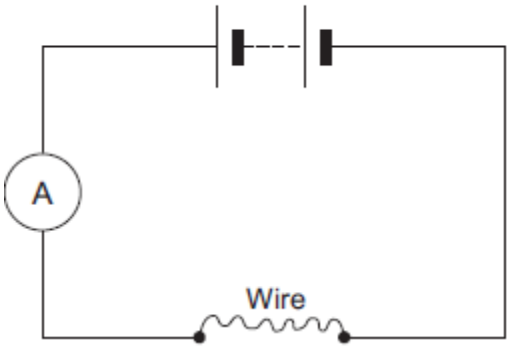
(1)

(c) The resistance of a wire can be calculated using the readings from an ammeter and a voltmeter.

(i) Complete **Figure 2** by drawing a voltmeter in the correct position in the circuit. Use the

correct circuit symbol for a voltmeter.

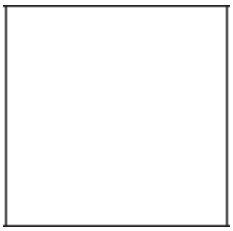
Figure 2



(1)

(ii) In a circuit diagram, a wire can be represented by the symbol for a resistor.

In the box below, draw the circuit symbol for a resistor.



(1)
(Total 9 marks)

Q2.

A student finds some information about energy-saving light bulbs.

(a) A 30W light bulb uses 600J of electrical energy in a certain period of time. In that time, it produces 450 J of light energy. The rest of the energy is wasted.

(i) Calculate the energy wasted by the light bulb in this period of time.

_____

Wasted energy = _____ J

(1)

(ii) What happens to the energy wasted by the light bulb?

_____

_____

(1)

(iii) Calculate the efficiency of this light bulb.

_____

_____

Efficiency = _____

(2)

(iv) Calculate the period of time, in seconds, during which the 600 J is provided to the 30 W light bulb.

_____

_____

Time = _____ s

(2)

(b) A company that makes light bulbs provides information about some of their products.

The table shows some of this information.

	Power in watts	**Lifetime in hours**	**Cost of bulb in £**
Filament bulb	60	1250	2.00
LED bulb	12	50 000	16.00

(i) Suggest why it is important to confirm this information independently.

_____

(1)

(ii) A homeowner is thinking about replacing his filament bulbs with LED bulbs.

A 12 W LED bulb gives the same light output as a 60 W filament bulb.

Suggest reasons why the homeowner is likely to choose LED bulbs.

Use the information given in the table.

_____

_____

_____

_____

(2)

(iii) State **one** factor, other than efficiency, that is important when considering the choice of a bulb for lighting in the home.

_____

_____

(1)

(Total 10 marks)