Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic :10_ Electricity And Circuits

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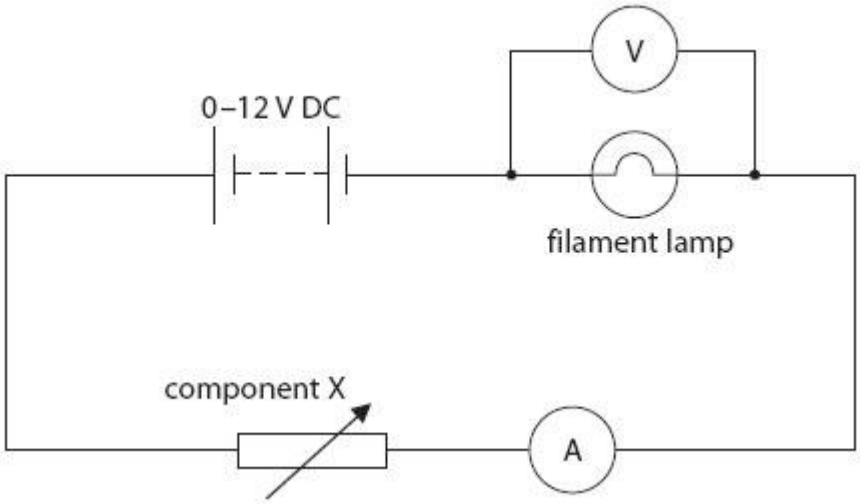
Name of the Student:_____
Max. Marks : 26 Marks **Time : 26 Minutes**

Q1.

A student sets up an experiment to measure the potential difference (voltage) across a filament lamp.
She changes the current through the lamp.
The diagram shows the circuit she used.



The student recorded these readings.

current / A	potential difference / V
0.00	0.0
0.20	2.0
0.31	4.0
0.37	6.0
0.42	8.0
0.44	10.0

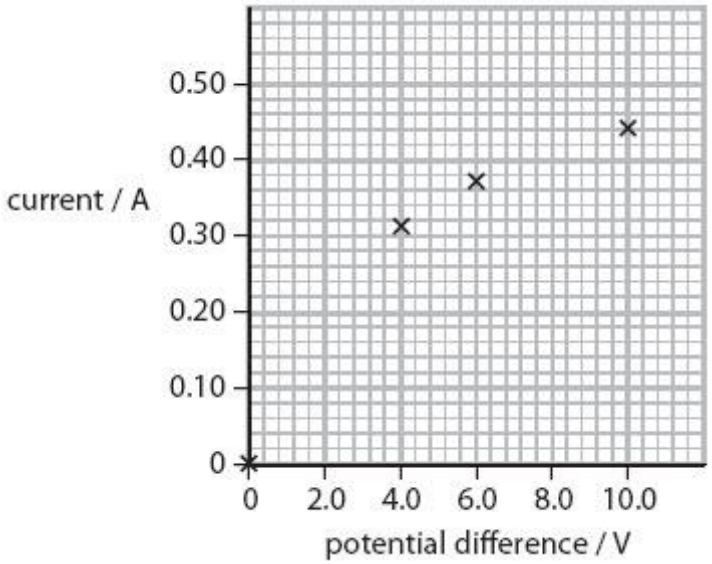
Four points are plotted on the graph.

(i) Plot the points for 2.0 V and 8.0 V.

(1)

(ii) Draw the line of best fit.

(1)



Q2.

Explain why the temperature of a resistor increases when a current passes through it.

(2)

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Q3.

An electric kettle is connected to a mains voltage of 230 V.
The current in the kettle is 12 A.

Calculate the power of the kettle.

(2)

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Q4.

A student uses an electric kettle.

It works from the 230 V mains supply.

(a) Complete the sentence by putting a cross (☒) in the box next to your answer.

A potential difference of 1 volt is the same as

(1)

- ☒ **A** 1 joule per coulomb
- ☒ **B** 1 joule per ohm
- ☒ **C** 1 watt per ohm
- ☒ **D** 1 watt per coulomb

(b) The power of the kettle when it is heating water is 1.8 kW.
The mains voltage is 230 V.

(i) Calculate the current in the kettle.

(3)

current = ... A

(ii) The kettle is switched on for 2 minutes.
Calculate the total amount of energy transferred by the kettle in this time.

(2)

energy transferred = ... J

(iii) The heating element of the kettle contains a resistor made from a long length of wire. Explain why an electric current in a resistor makes the resistor heat up.

(2)

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(Total for Question = 8 marks)

Q5.

(a) Complete the sentence by putting a cross (☒) in the box next to your answer.

An electric current is the rate of flow of

(1)

☒ **A** atoms

☒ **B** charge

☒ **C** voltage

☒ **D** watts

(b) An electric kettle is connected to a mains voltage of 230 V.
The current in the kettle is 12 A.

Calculate the power of the kettle.

(2)

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(c) A television has a power of 400 W.
The cost of 1 kW h of electrical energy is 15p.

Calculate the cost of using the television for 10 hours.

(3)

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*(d) Some students found this information about an energy saving lamp and a filament lamp that give out almost the same amount of light.

energy saving lamp

power = 15 W

cost = £1.50

lifetime = 10 000 hours

produces 20 J of light energy for each 100 J of electrical energy supplied

filament lamp

power = 60 W

cost = £0.30

lifetime = 1 000 hours

produces 5 J of light energy for each 100 J of electrical energy supplied

Describe the advantages and disadvantages of each type of lamp.

(6)

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(Total for Question = 12 marks)