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

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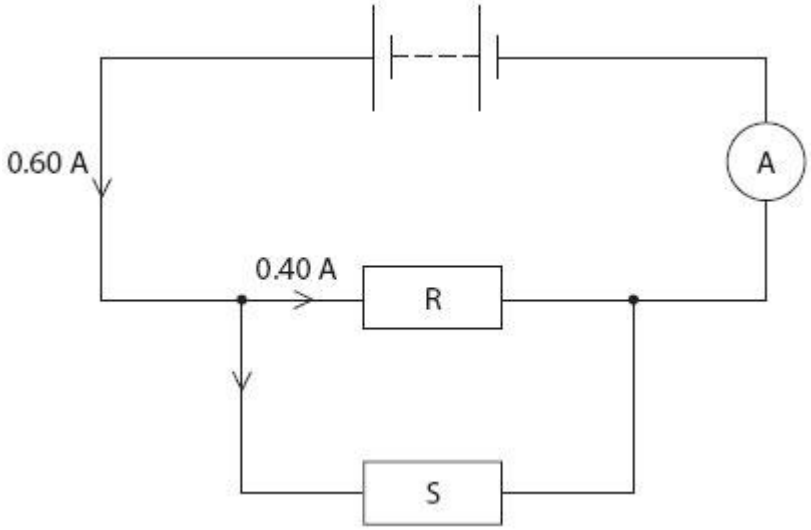
Name of the Student:_____
Max. Marks : 26 Marks **Time : 26 Minutes**

Q1.

(a) The diagram shows an electric circuit with two resistors, R and S.



(i) R has a resistance of 11 ohms.

Calculate the potential difference across R.

(2)

.....

(ii) Use information from the diagram to calculate the current in S.

(1)

.....

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

A student wants to measure the battery voltage with a voltmeter.

The voltmeter should be placed

(1)

☒ **A** in series with the battery

☒ **B** in parallel with the battery

☒ **C** in parallel with the ammeter

☒ **D** in series with either resistor R or S

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

(2)

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*(c) A resistor is a circuit component.

Two other circuit components are a light dependent resistor (LDR) and a thermistor.

Explain how LDRs and thermistors can be used to control the current in a circuit.

(6)

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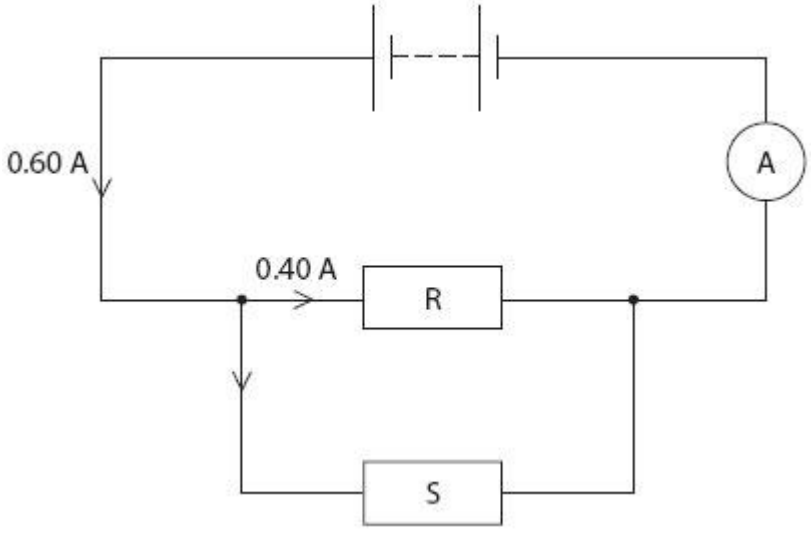
(Total for Question is 12 marks)

Q2.

The diagram shows an electric circuit with two resistors, R and S.



(i) R has a resistance of 11 ohms.

Calculate the potential difference across R.

(2)

.....

(ii) Use information from the diagram to calculate the current in S.

(1)

.....

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

A student wants to measure the battery voltage with a voltmeter.

The voltmeter should be placed

(1)

☒ **A** in series with the battery

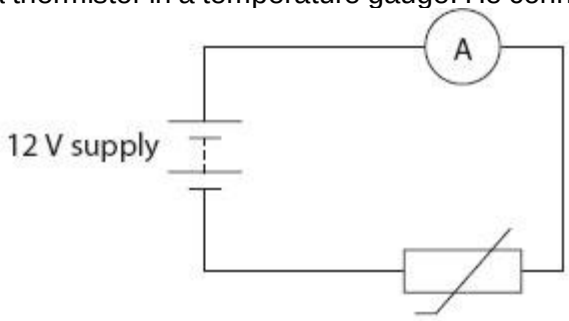
☒ **B** in parallel with the battery

☒ **C** in parallel with the ammeter

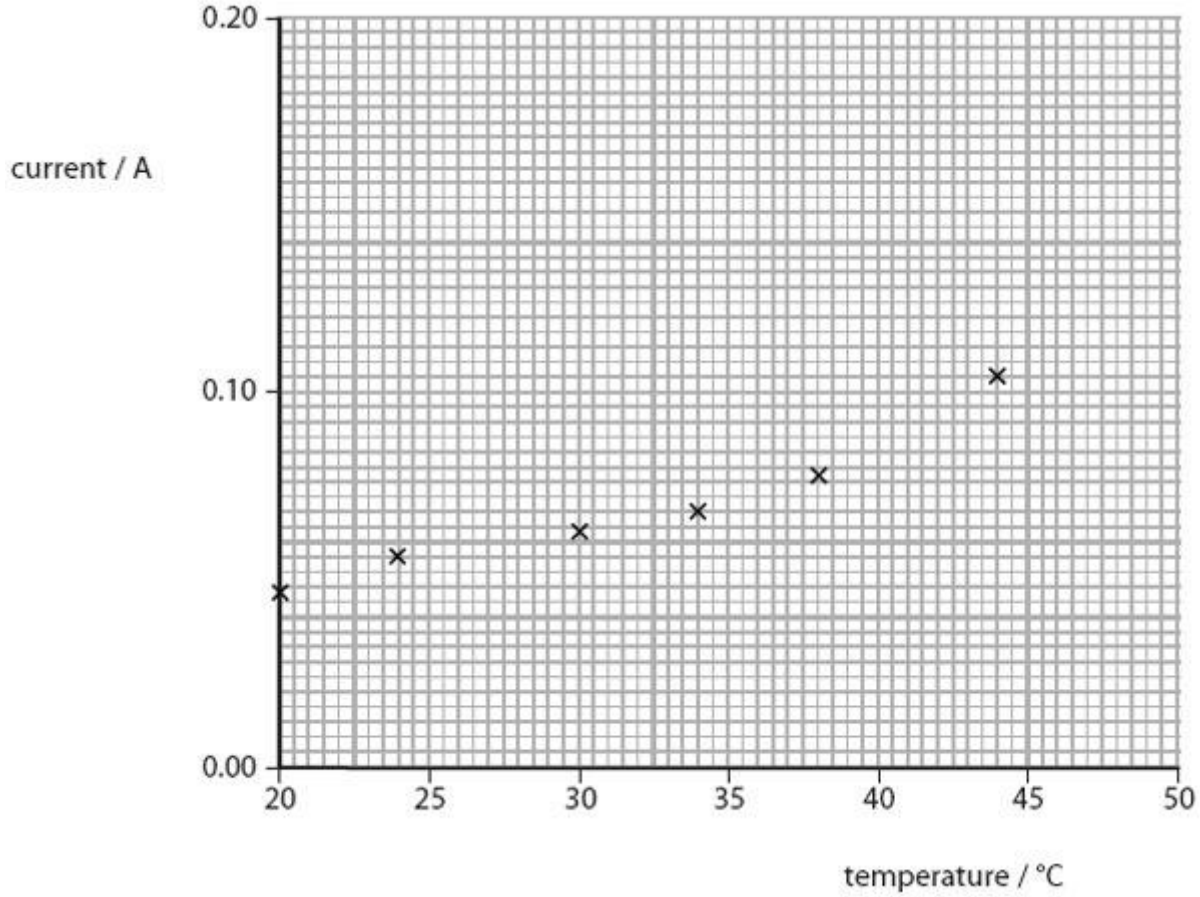
☒ **D** in series with either resistor R or S

Q3.

(a) A designer is going to use a thermistor in a temperature gauge. He connects the thermistor into this circuit.



He heats the thermistor and measures the current at different temperatures. Here are some of the results plotted on a graph.



At 47 °C the current was 0.138 A.

(i) Plot this value on the graph.

(1)

(ii) Draw the curve of best fit through the points.

(1)

(iii) The supply voltage is 12 V.
At 20 °C the current is 0.047 A.

Calculate the resistance of the thermistor at this temperature.

(3)

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(iv) Use this graph of current against temperature to explain the relationship between resistance and temperature for this thermistor.

(2)

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(b) (i) When there is an electric current in a resistor, the resistor gets hot.
Explain why the resistor gets hot.

(2)

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(ii) Suggest why the thermistor in a temperature gauge might indicate a temperature slightly higher than the actual temperature of its surroundings.

(1)

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(Total for Question = 10 marks)