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

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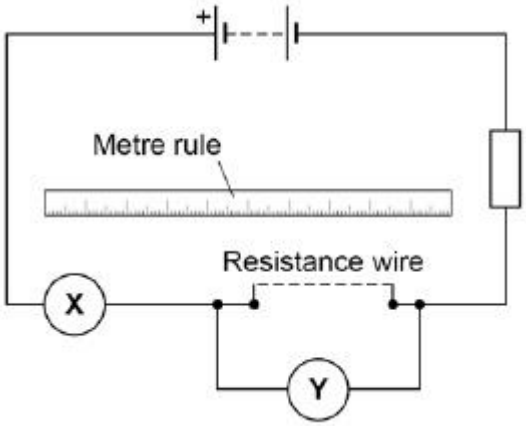
Name of the Student:_____
Max. Marks : 26 Marks **Time : 26 Minutes**

Q1.

A student investigated how length affects resistance of a wire.

Figure 1 shows the circuit the student used.

Figure 1



(a) The student took measurements using the meters **X** and **Y**.

Name meters **X** and **Y**.

Meter **X** _____

Meter **Y** _____

(2)

The table shows the results.

	Resistance in Ω			
Length in m	**Test 1**	**Test 2**	**Test 3**	**Mean**
0.100	0.66	0.67	0.74	0.69
0.200	1.36	1.40	1.34	1.37
0.300	2.02	2.02	2.03	2.02
0.400	2.77	2.72	2.68	2.72
0.500	3.37	3.35	3.40	3.37
0.600	4.03	4.02	3.96	4.00

(b) For which length of wire are the readings of resistance the most precise?

Give the reason for your answer.

Length = _____ m

Reason _____

_____

(2)

(c) Why did the student do three tests and calculate a mean?

_____

_____

(1)

(d) Write the equation that links current, potential difference, and resistance.

_____

(1)

(e) The potential difference across a piece of wire is 2.1 V

The current in the wire is 0.30 A

Calculate the resistance of the wire.

Write any equation that you use.

_____

_____

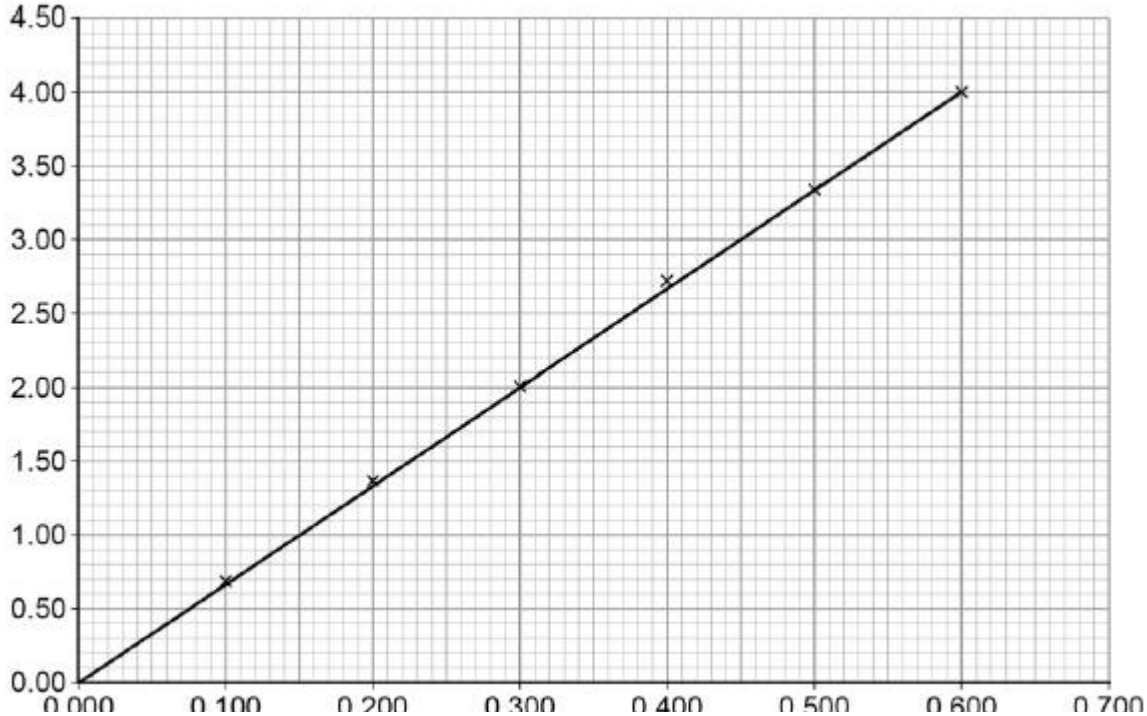
_____

Resistance = _____ Ω

(3)

Figure 2 shows a graph of the results.

Figure 2



(f) What is the label for each axis of the graph?

x-axis _____

y-axis _____

(2)

(g) What conclusion can be made from the graph in **Figure 2**?

_____

_____

(1)

(Total 12 marks)

Q2.

Some street lamps contain sodium.

Below are two isotopes of sodium.

$^{23}_{11}Na$ $^{24}_{11}Na$

(a) What are isotopes?

_____

_____

_____

_____

(2)

(b) How many protons and neutrons are in a nucleus of $^{23}_{11}Na$?

Number of protons = _____

Number of neutrons = _____

(2)

(c) The sodium atoms emit light.

What would cause light to be emitted from a sodium atom?

Tick **one** box.

Electrons being emitted from the nucleus.	☐
Electrons falling to a lower energy level.	☐
Electrons leaving the atom when it is ionised.	☐
Electrons moving to a higher energy level.	☐

(1)

(d) In a street lamp, solid sodium is melted and vaporised.

Describe how the arrangement of the sodium atoms changes as the sodium goes from solid to liquid to gas.

_____

_____

_____

_____

_____

_____

_____

_____

(4)

The table shows the power ratings of some types of sodium lamp.

Type of sodium lamp	Power in Watts
A	35
B	50
C	70
D	100

E	150

(e) Some main roads are lit by type **E** sodium lamps.

Calculate the energy transferred by one type **E** sodium lamp in 1 hour.

_____

_____

_____

_____

_____

Energy transferred = _____ J

(3)

(f) Many housing estates are lit by type **A** sodium lamps.

Suggest **two** advantages of using type **A** sodium lamps on housing estates.

1. _____

2. _____

(2)

(Total 14 marks)