Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 10_Electricity

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Q1.

A student investigates how current varies with potential difference across a filament lamp.
The student uses a power supply, a variable resistor, the filament lamp and two meters.
Part of the circuit diagram is shown in Figure 10.
Complete the circuit diagram needed for this investigation.

(3)



Figure 10

(Total for question = 3 marks)

Downloaded from www.merit-minds.com

Q2.

Figure 1 shows the results from an experiment where the potential difference (voltage) across a filament lamp was varied.

The current and voltage were measured.

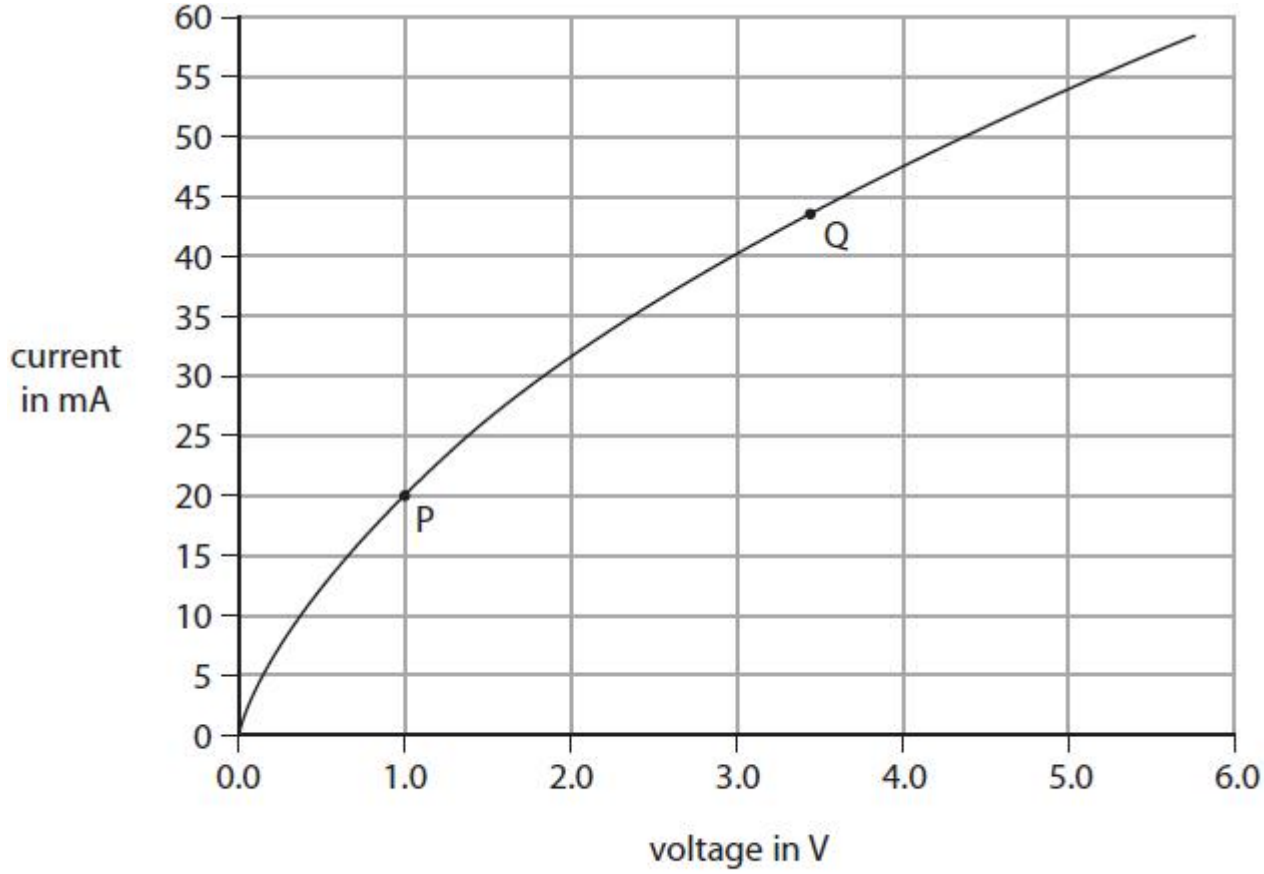


Figure 1

(i) Describe the relationship between the current and the voltage as shown in the graph in Figure 1.

(2)

.....

.....

.....

.....

(ii) Use the values of the voltage and current at point P and at point Q on the graph in Figure 1 to complete the table in Figure 2.

(2)

	voltage in V	current in mA
point P		
point Q		

Figure 2

(iii) Calculate the resistance of the filament lamp when the voltage is 4.5 V and the current is 51 mA.

Downloaded from www.merit-minds.com

Use the equation

$$R = \frac{V}{I}$$

(2)

resistance = ... Ω

(iv) Explain why the resistance of the filament lamp changes as the voltage across it increases.

(3)

.....

.....

.....

.....

.....

.....

(Total for question = 9 marks)

Downloaded from www.merit-minds.com

Q3.

Another student repeats the investigation in part (a) using a data logger.

The data logger records observations using sensors instead of meters. The sensors are connected to a computer to collect and display the observations.

The data logger collects 555 pairs of data in 2 minutes.

The results are shown in Figure 11.

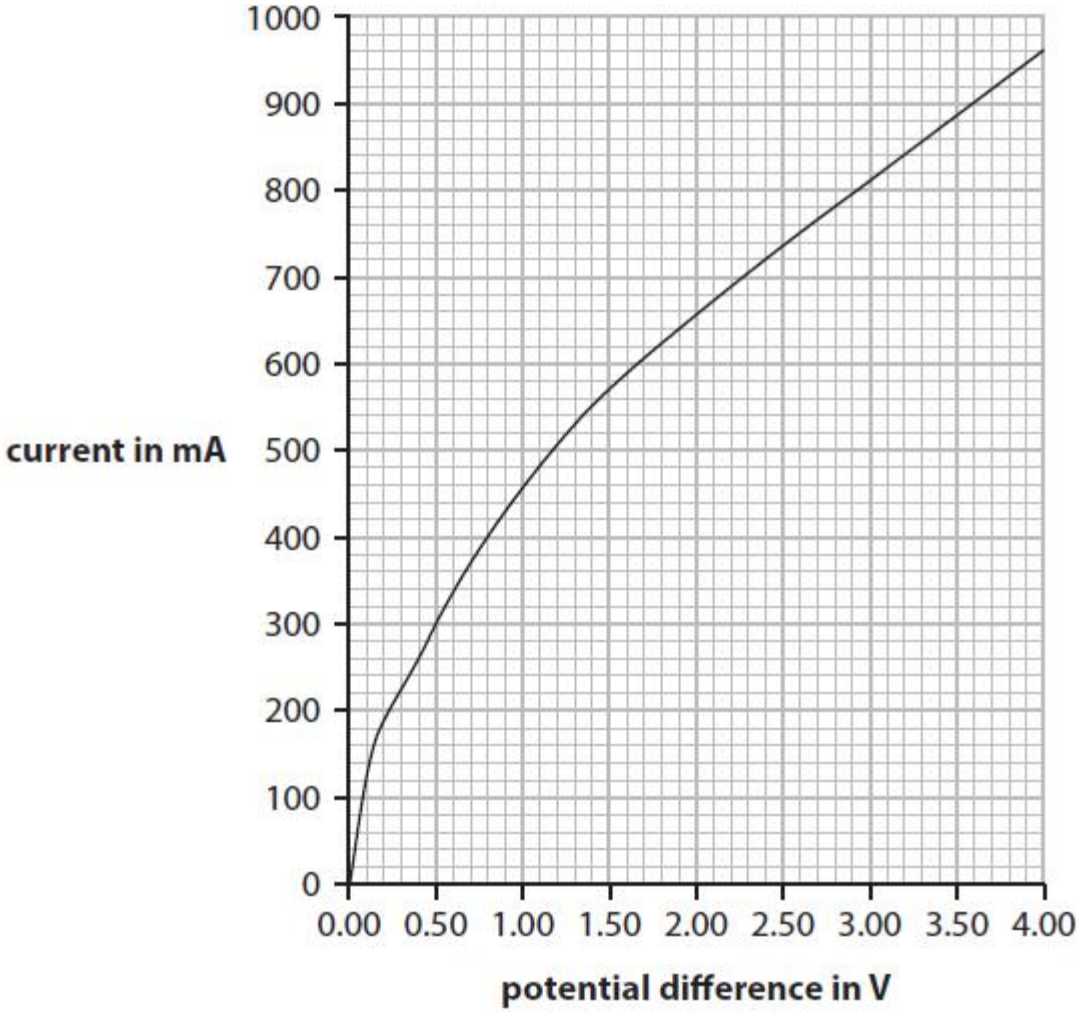


Figure 11

(i) Suggest **one** advantage of using a data logger instead of meters in this investigation.

(1)

.....

.....

(ii) Describe how current varies with potential difference in the graph in Figure 11.

(2)

.....

.....

.....

.....

(iii) Use data from the graph in Figure 11 to show how the resistance changes with potential difference for the filament lamp.

Downloaded from www.merit-minds.com

(2)

.....

.....

.....

.....

(Total for question = 5 marks)

Downloaded from www.merit-minds.com