

Name of the Student: _____

Max. Marks : 18 Marks

Time : 18 Minutes

Q1.

Describe the difference between direct current (d.c.) and alternating current (a.c.) in electrical circuits.

(2)

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(Total for question = 2 marks)

Q2.

Figure 18 shows the results from an experiment where the potential difference (voltage) across a filament lamp was varied.

The current and voltage were measured.

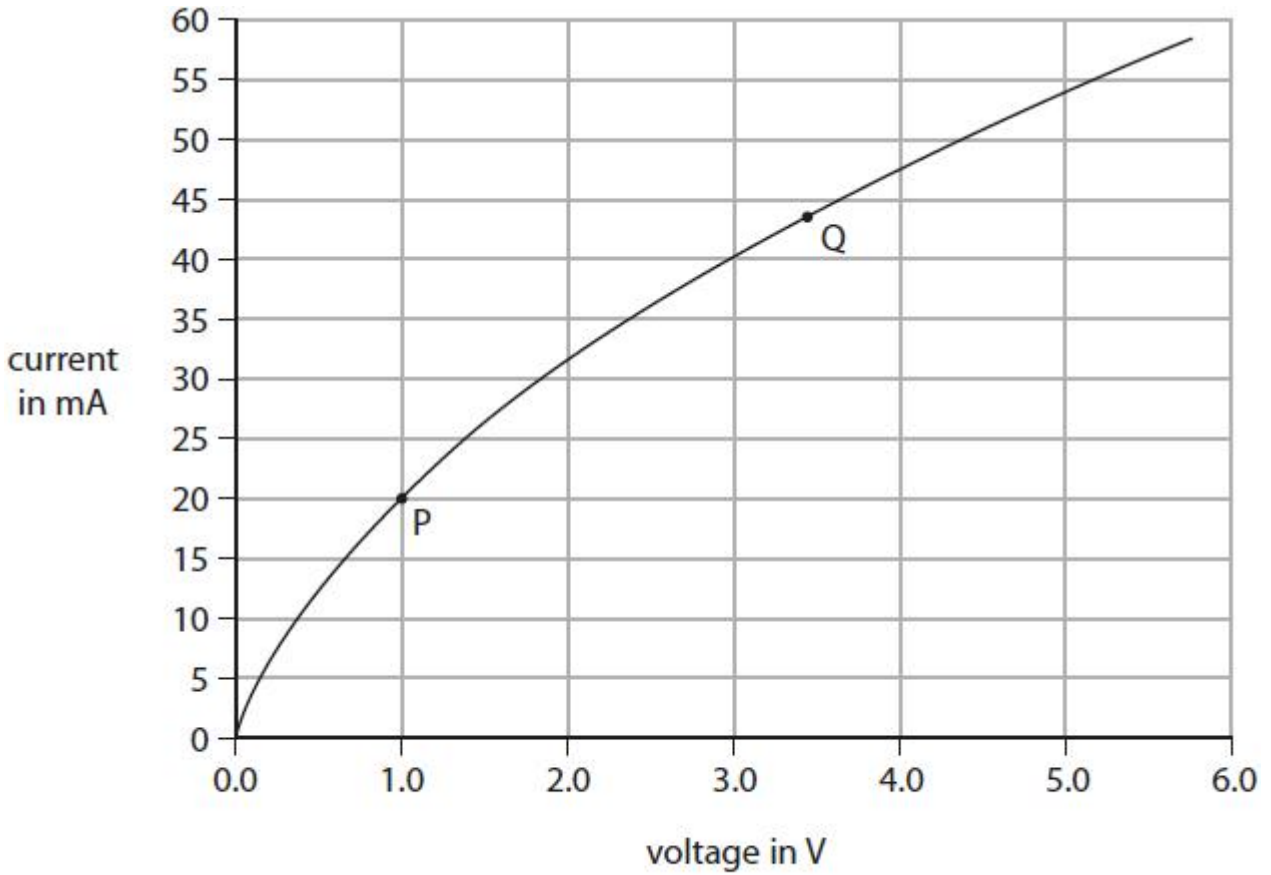


Figure 18

(i) Describe the relationship between the current and the voltage as shown in the graph in Figure 18.

(2)

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.....

(ii) Use the values of the voltage and current at point P and at point Q on the graph in Figure 18 to complete the table in Figure 19.

(2)

	voltage in V	current in mA
point P		
point Q		

Figure 19

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

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)

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(Total for question = 9 marks)

Q3.

A student is given a low voltage power supply and 1 m of resistance wire.

The student uses these and other pieces of equipment to measure the resistance of just 50 cm of the resistance wire.

Draw a diagram of the circuit that the student should use.

Your circuit diagram should identify the pieces of equipment that the student uses.

(3)

(Total for question = 3 marks)

Q4.

Figure 1 shows an electrical circuit.

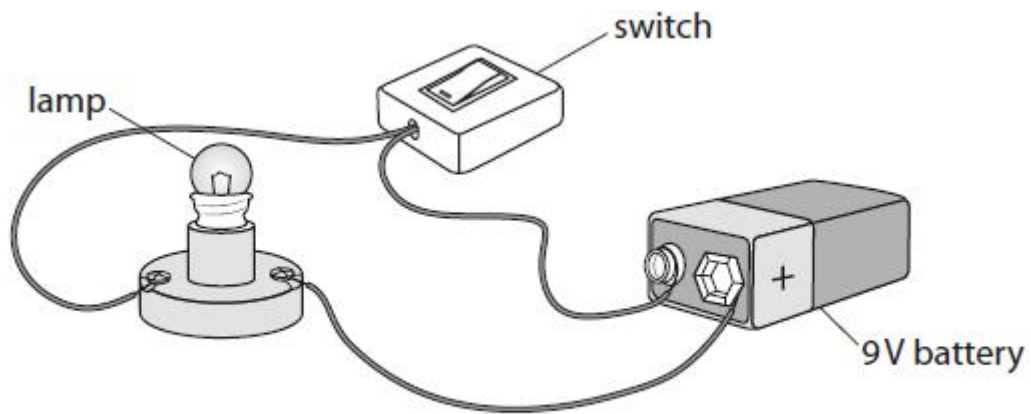


Figure 1

Draw a circuit diagram of the electrical circuit in Figure 1 in the space below.

(4)

(Total for question = 4 marks)