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

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

A student investigates resistors connected in series in an electrical circuit.

The student has

- a 3.0 V battery
- a 22 Ω resistor
- a resistor marked X.

The student does not know the value of the resistor marked X.

The student decides to measure the potential difference (voltage) across resistor X.

Figure 8 shows the circuit that the student connected.

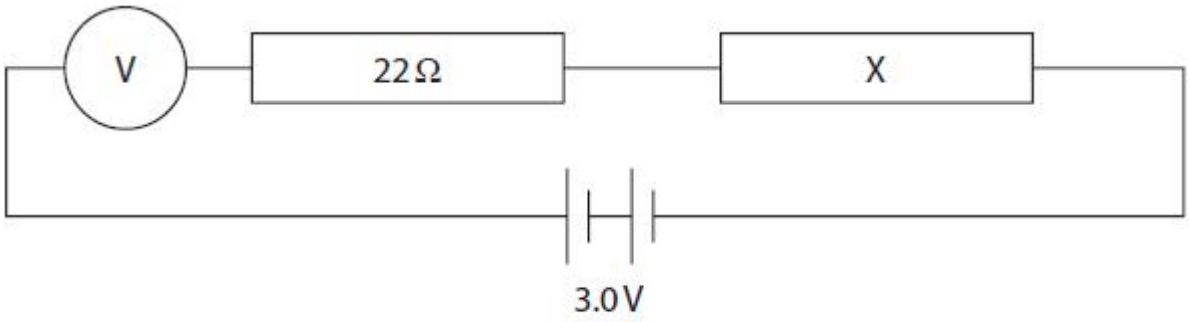

Figure 8

The circuit is connected incorrectly.

Describe how the student should correct the mistake.

(2)

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(Total for question = 2 marks)

Q2.

Figure 11 shows the results from an experiment where the potential difference (voltage) across a filament lamp was varied.

The current and voltage were measured.

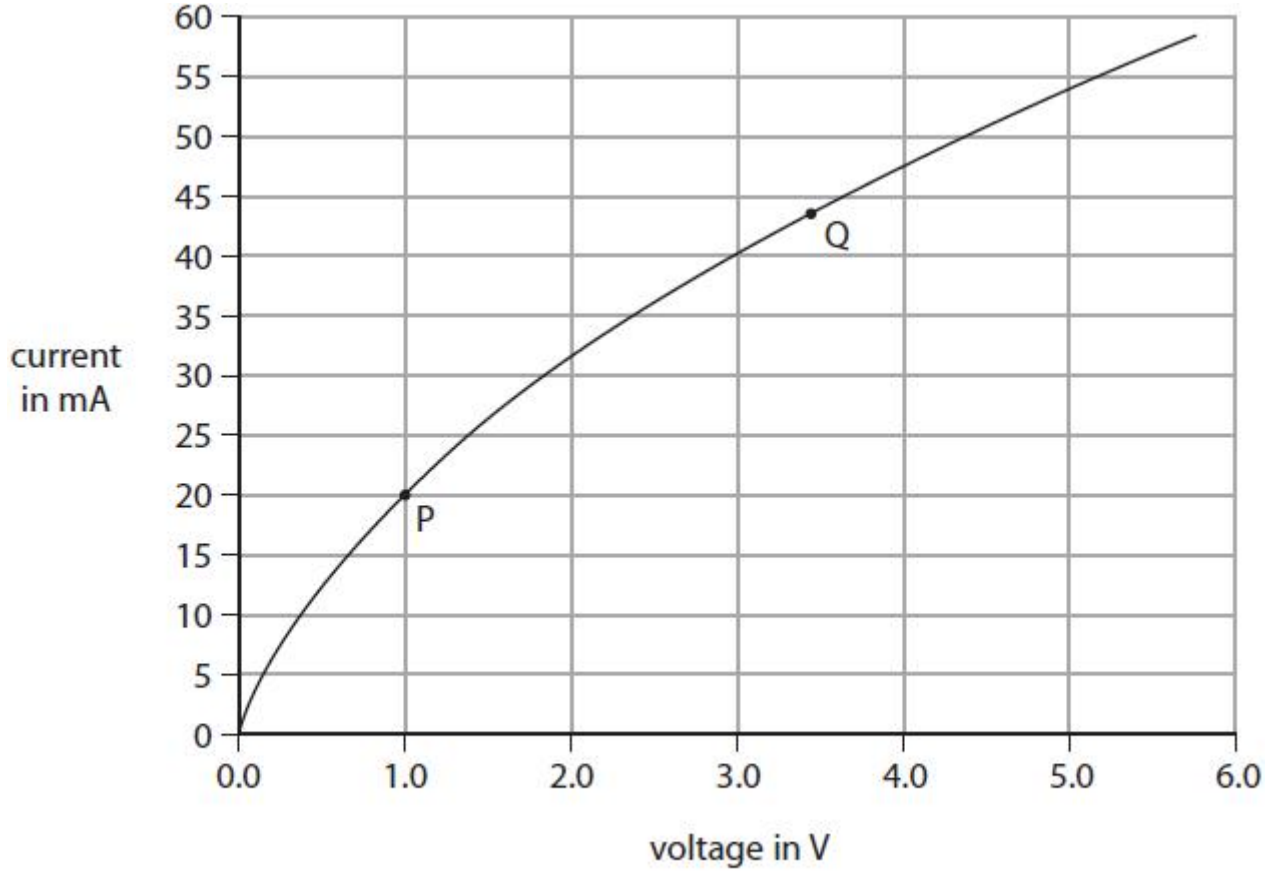

Figure 11

(i) Describe the relationship between the current and the voltage as shown in the graph in Figure 11.

(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 11 to complete the table in Figure 12.

(2)

	voltage in V	current in mA
point P		
point Q		

Figure 12

(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 long piece of wire is made into a coil as shown in Figure 12.

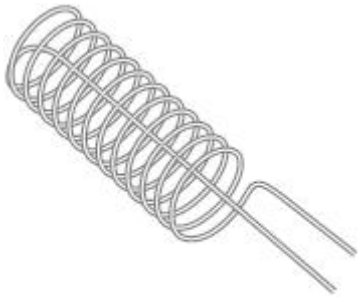

Figure 12

The coil is connected to a low voltage power supply.

Describe how this coil could be used instead of the Bunsen burner in Figure 10.

(2)

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(Total for question = 2 marks)

Q4.

Figure 13 shows a drone.

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Figure 13

The blades on the drone are turned by electric motors.

The electric motors are powered by a battery.

Figure 15 represents the energy transfers involved when the drone rises from the ground.

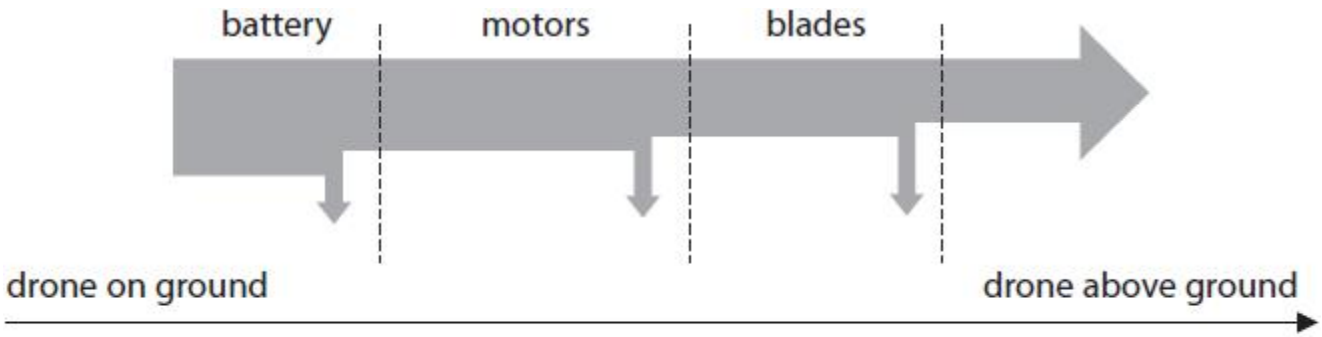

Figure 15

Describe the changes in the way energy is stored when the drone rises from the ground.

Your answer should refer to energy transfers.

(6)

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(Total for question = 6 marks)