Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Energy (High Demand)

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Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Q1.

A hybrid car has an electric motor and a petrol engine.

(a) Petrol is a non-renewable energy resource.

What is meant by a non-renewable energy resource?

_____

_____

(1)

(b) The electric motor in the car is powered by a battery.

To charge the battery, the car is plugged into the mains supply at 230 V

The power used to charge the battery is 6.9 kW

Calculate the current used to charge the battery.

_____

_____

_____

_____

_____

_____

Current = _____ A

(4)

(c) Mains electricity is an ac supply.

Explain the difference between direct and alternating potential difference.

_____

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(2)

(d) The cable used to connect the car to the mains electricity supply has a low resistance.

Explain why it is better to use a cable with a low resistance than to use a cable with a high resistance.

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(2)

(Total 9 marks)

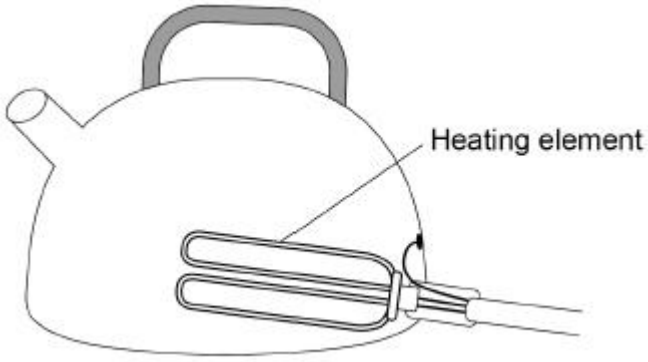
Q2.

A student investigated how the mass of water in an electric kettle affected the time taken for the water to reach boiling point.

The kettle switched off when the water reached boiling point.

Figure 1 shows the kettle.

Figure 1



(a) The heating element of the kettle was connected to the mains supply.

Explain why the temperature of the heating element increased.

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_____

(2)

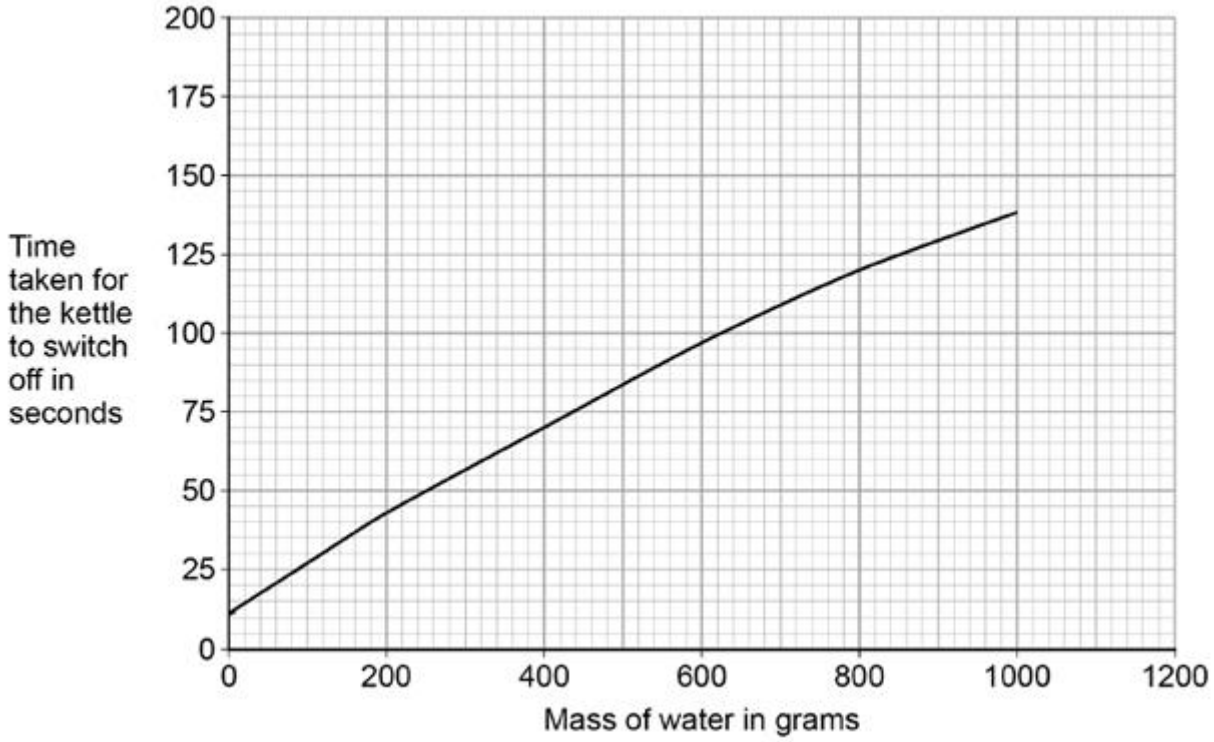
(b) Give **one** variable that the student should have controlled.

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(1)

Figure 2 shows how the mass of water in the kettle affected the time taken for the kettle to switch off.

Figure 2



(c) Suggest why the line on **Figure 2** does **not** go through the origin.

(1)

(d) Suggest why the results give a non-linear pattern.

(1)

(e) The power of the kettle was 2.6 kW

The kettle took 120 seconds to heat 0.80 kg of water from 18 °C to 100 °C

Calculate the specific heat capacity of water using this information.

Give your answer to 2 significant figures.

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Specific heat capacity = _____ J/kg °C

(6)

(Total 11 marks)

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