Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic: Electricity (Low Demand)

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

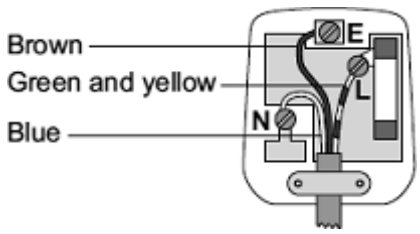
Q1.

The diagrams show the inside of a 13 amp plug.

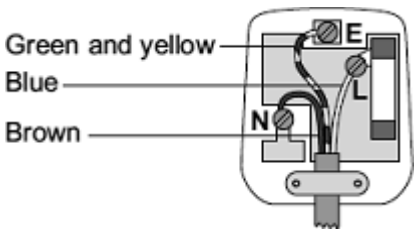
(a) (i) Which **one** of the plugs, **A**, **B**, **C** or **D**, is correctly wired?

Write your answer, **A**, **B**, **C** or **D**, in the box.

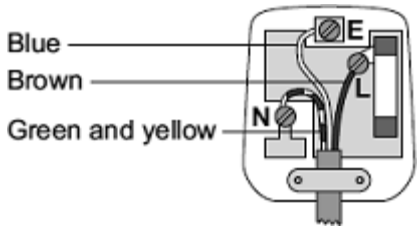
A



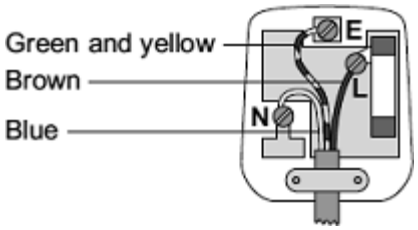
B



C



D



The plug that is correctly wired is ☐

(1)

(ii) What material is the outside casing of a plug made from?

_____

(1)

(b) An electric drill draws a current of 2 amps from the 230 volt mains electricity supply.

Use the equation in the box to calculate the power of the drill.

power = current × potential difference

Show clearly how you work out your answer.

_____

_____

Power _____ watts

(2)

(c) A householder needs to replace a damaged plug. Most replacement plugs are sold with a 13 amp fuse fitted inside. The householder thinks it would be better for shops to sell the plugs without a fuse. He could then buy either a 3 A, 5 A or 13 A fuse to fit inside the plug.

Explain an advantage of selling plugs without a fuse, rather than with a 13 amp fuse fitted.

_____

_____

_____

_____

(2)

(Total 6 marks)

Q2.

The diagram shows four electrical appliances. Each appliance is designed to transform electrical energy into one form of output energy.

Kettle

Toaster

Radio

Hair straighteners

(a) Which **one** of the appliances is designed to give a different form of output energy from the other three appliances?

_____

Give a reason for your answer.

_____

_____

(2)

(b) The power of each appliance is given in the table.

Appliance	Power
Kettle	2.5 kW
Toaster	920 W

Radio	15 W
Hair straighteners	75 W

Each appliance is switched on for 5 minutes.

Which appliance transforms the most energy?

_____

(1)

(c) The 75 watt hair straighteners are switched on for a few minutes each day.
In one year, the amount of energy transferred from the mains electricity supply to the hair straighteners is 4 kilowatt-hours.

Electricity costs 15 p per kilowatt-hour.

Use the equation in the box to calculate the yearly cost of using the hair straighteners.

total cost = number of kilowatt-hours × cost per kilowatt-hour

Show clearly how you work out your answer.

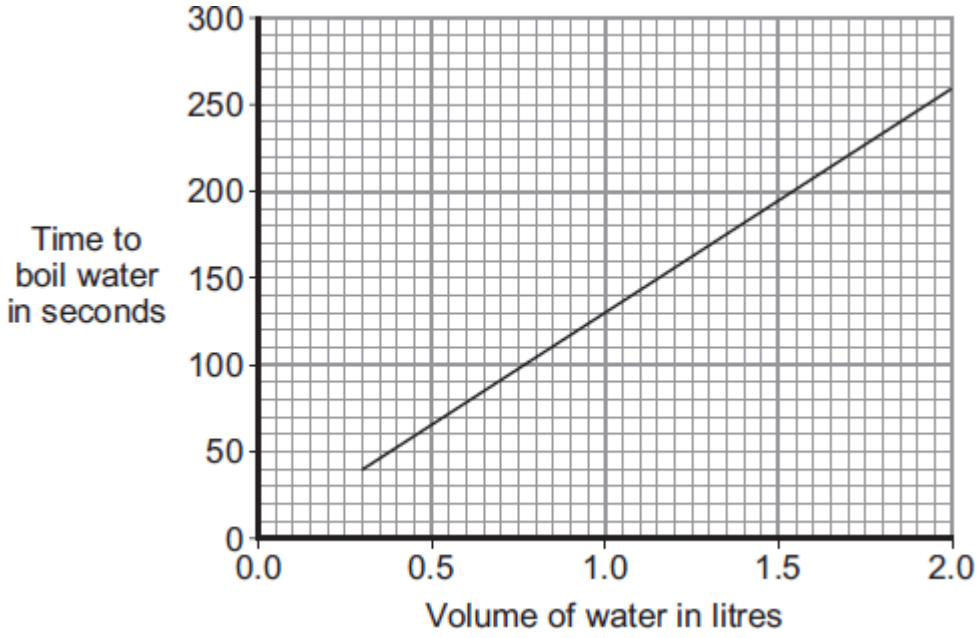
_____

_____

Total cost = _____ pence

(2)

(d) The graph shows how the time to boil water in an electric kettle depends on the volume of water in the kettle.



A householder always fills the electric kettle to the top, even when only enough boiling water for one small cup of coffee is required.

Explain how the householder is wasting money.

_____

_____

_____

_____

_____

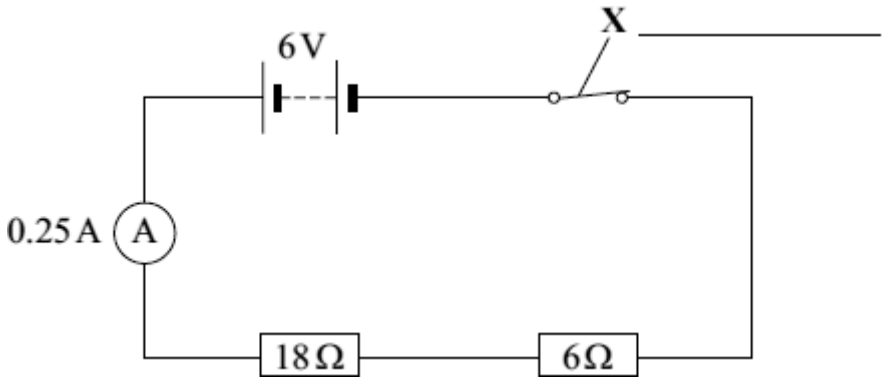
_____

(3)

(Total 8 marks)

Q3.

A circuit diagram is shown below.



(a) Use a word from the box to label component **X**.

fuse	**switch**	**thermistor**

(1)

(b) Calculate the total resistance of the two resistors in the circuit.

_____

Total resistance = _____ Ω

(1)

(c) The reading on the ammeter is 0.25 A.

The current through the 6 Ω resistor will be:

bigger than 0.25 A **equal to 0.25 A** **smaller than 0.25 A**

Draw a ring around your answer

(1)

(d) The 6 V battery is made by correctly joining several 1.5 V cells in series.

Calculate the number of cells needed to make the battery.

_____

Number of cells = _____

(1)

(Total 4 marks)