

Name of the Student: _____

Max. Marks : 18 Marks

Time : 18 Minutes

Q1.

The pictures show six different household appliances.

Fan heater

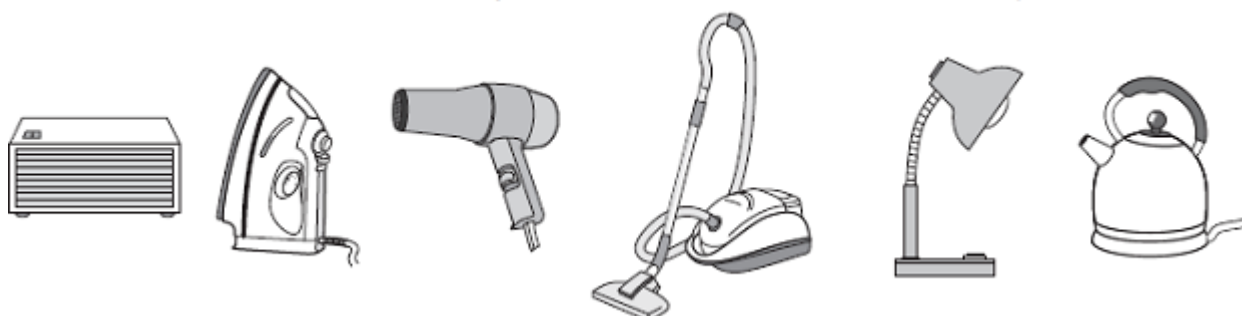
Iron

Hairdryer

Vacuum cleaner

Table lamp

Kettle



- (a) Four of the appliances, including the fan heater, are designed to transform electrical energy into heat.

Name the other **three** appliances designed to transform electrical energy into heat.

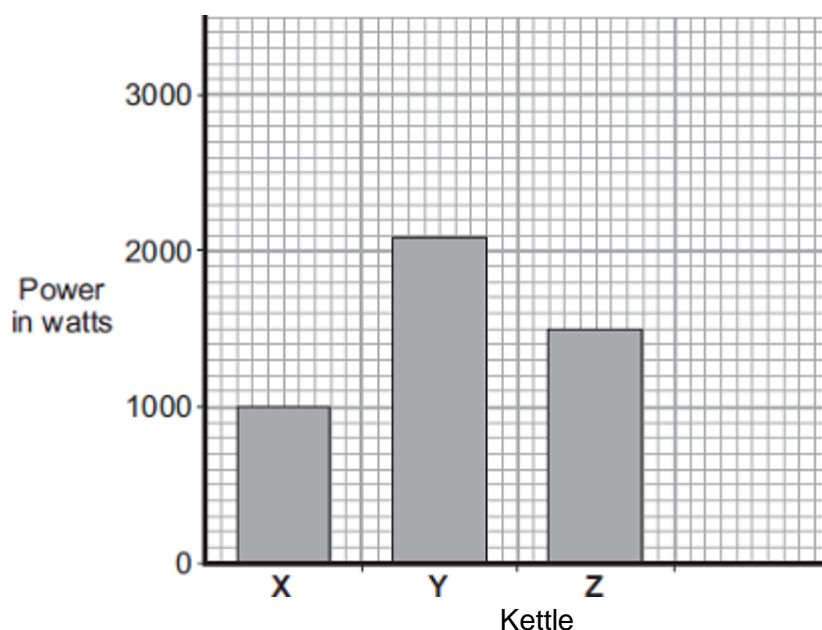
1. _____

2. _____

3. _____

(3)

- (b) The bar chart shows the power of three electric kettles, X, Y and Z.



- (i) In one week, each kettle is used for a total of 30 minutes.

Which kettle costs the most to use?

Put a tick (✓) next to your answer.

X ☐

Y ☐

Z ☐

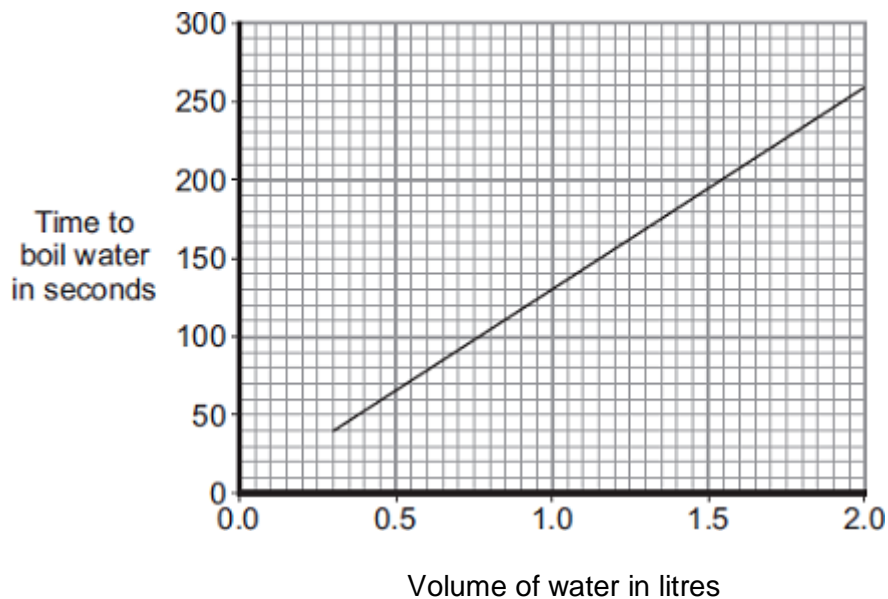
(1)

- (ii) A new 'express boil' kettle boils water faster than any other kettle.

Draw a fourth bar on the chart to show the possible power of an 'express boil' kettle.

(1)

- (c) 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 wanted.

Explain how the householder is wasting money.

Q2.

A householder was out shopping when her electricity meter reading should have been taken. The electricity company estimated the reading and sent the following bill. Unfortunately, the bill was damaged in the post.

AQA electricity

Customer reference: 2634724983
Date sent out: 18 September 2012

Your electricity bill

Present reading: 53600 (e) 13 September
Previous reading: 53490 12 June

Used: 110 kWh

Cost per kWh = 15p (e) = estimated reading
Cost of electricity used =

- (a) Use the equation in the box to calculate the cost of the electricity used between 12 June and 13 September.

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

Show clearly how you work out your answer.

Total cost = _____

(2)

- (b) The estimated reading shown on the bill was not very accurate. The correct reading was 53782.

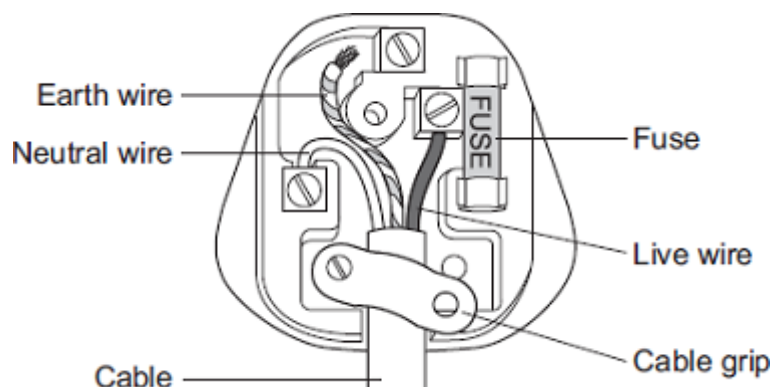
How many kilowatt-hours of electricity had the householder actually used between 12 June and 13 September?

(2)

(Total 4 marks)

Q3.

- (a) The diagram shows the inside of an incorrectly wired three-pin plug.



(i) What **two** changes need to be made so that the plug is wired correctly?

1. _____

2. _____

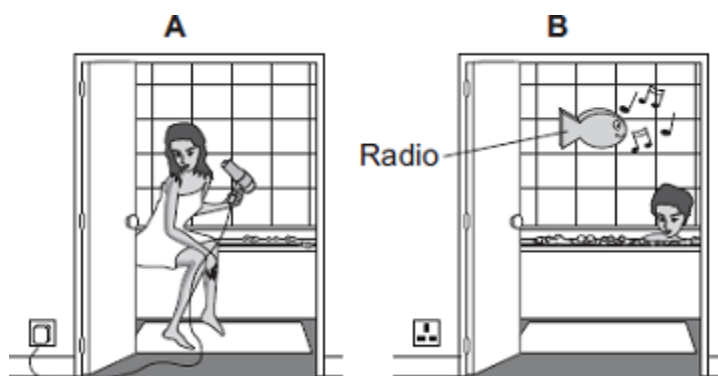
(2)

(ii) The fuse inside a plug is a safety device.

Explain what happens when too much current passes through a fuse.

(2)

(b) Each of these pictures shows an electrical appliance being used in a bathroom.



Using the hairdryer in picture **A** is dangerous. However, it is safe to use the battery-operated radio in picture **B**.

Explain why.

(2)
(Total 6 marks)