OCR
Oxford Cambridge and RSA

GCSE Physics A (Gateway)

J249/01 Physics A P1-P4 and P9 (Foundation Tier)

Question Set 1

1 A student uses four electrical appliances for different lengths of time.

Look at the table.

Appliance	Power (W)	Time used (hours)
Hair dryer	1500	0.3
TV	100	5
Toaster	2000	0.2
Light bulb	10	12

(a) (i) Which appliance uses the **most** energy? **[1]**

$E = Pt$ Hair dryer $= 1500 \times 0.3 = 450$, TV $= 100 \times 5 = 500$
Toaster $= 2000 \times 0.2 = 400$, Light bulb $= 10 \times 12 = 120$
Thus TV uses the most energy

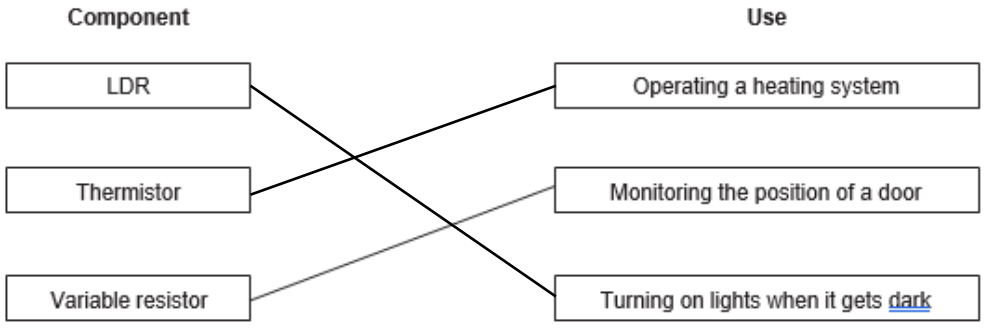
(ii) Which appliance uses the **least** energy? **[1]**

The light bulb

(b) Here are three different components and their use in the home.

Match the component to its correct use.

One has been done for you.



[2]

(c) A charge of 44 000 C flows through a light bulb. The potential difference is 230 V.

Calculate the energy transferred.

Use the equation: Charge = Energy ÷ Potential difference

Record your answer to **2** significant figures.

44000 = E ÷ 230

E = 10120000 J

Answer = ... 10000000 ..... J **[4]**

(d) **(i)** A student has completed her homework on static electricity.

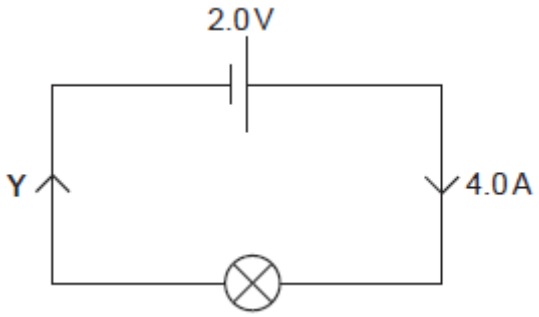
Look at her homework.

1 Static charge only builds up on insulators.
2 Opposite charges attract.
3 Like charges repel.
4 Only positive charges can move.

Identify the student's mistake and correct it.

only negative charges (electrons) can move. **[2]**

(ii) When charges move, a current flows.



Write down the current flowing at point **Y** in the circuit.

Answer = ... 4 .....A **[1]**

Total Marks for Question Set 1: 11