

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

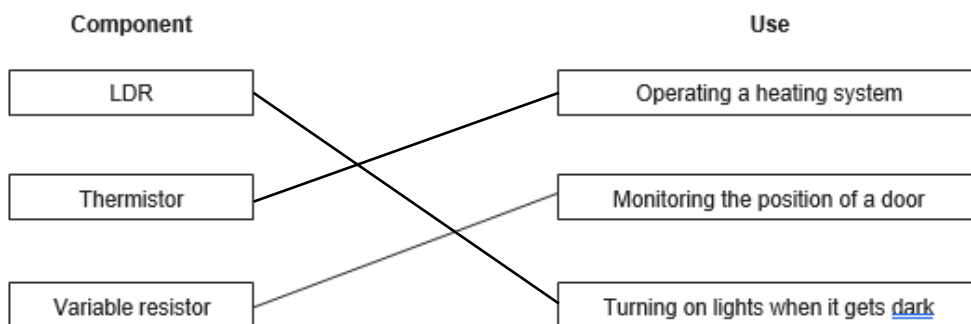
- (ii) Which appliance uses the **least** energy? [1]

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.

$$44\,000 = E \div 230$$

$$E = 10\,120\,000\text{ J} \quad \text{Answer} = \dots\dots\dots 10\,000\,000 \text{ J} \quad [4]$$

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

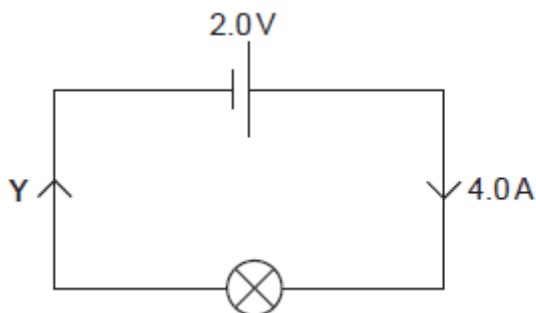
Look at her homework.

- 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

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