Do not write outside the box

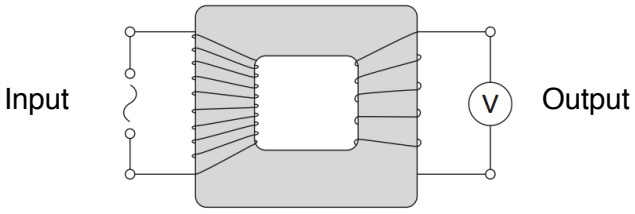
1 Transformers are used to increase and decrease potential difference.

Name the type of transformer that increases potential difference from low to high.

[1 mark]

……

1 (a) The diagram shows a transformer that can be used to decrease potential difference. In the UK mains electricity is alternating with a frequency of 50 hertz.



1 (a) (i) Explain how a transformer works.

[4 marks]

……

……

……

……

……

……

……

……

1 (a) (ii) The table shows values for the potential difference (p.d.) of the supply and the voltmeter reading.

Input P.D. (volts)	Output P.D. (volts)
8.8	4.4
4.4	
	8.8

Complete the table.

[2 marks]

1 (b) A different transformer is used to provided the correct power to a lamp.

The lamp runs off 4 amps and a potential difference of 12 volts.

The transformer that provides this voltage and current is connected to the mains electricity.

Mains electricity provides a potential difference of 230 volts.

Calculate the current drawn from the main electricity if there is no energy loss.

Use the correct equation from the equation sheet.

[3 marks]

……

……

……

……

Current = …… amps

1 (c) (i) Switch mode transformers are useful because they use very little power. They operate at frequencies different to mains supply.

What frequencies do switch mode transformers typically operate at? Circle the correct answer.

[1 mark]

0 to 50 hertz 50 to 200 hertz 500 to 2000 hertz 16 gigahertz or higher

1 (c) (ii) Give one advantage of using switch mode transformers in the home.

[1 mark]

……

……