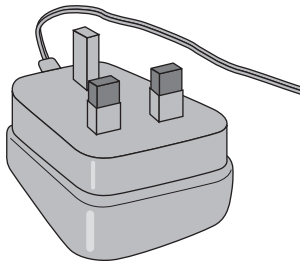
4 (a) The drawing shows the plug for operating a radio from the mains.



This plug contains a transformer. There are 4600 turns on its primary coil and 200 turns on its secondary coil. The plug is used on the mains supply and has a potential difference (p.d.) of 230 V across its primary coil.

Use the equation in the box to calculate the p.d. across the secondary coil of the transformer.

$$\frac{\text{p.d. across primary}}{\text{p.d. across secondary}} = \frac{\text{number of turns on primary}}{\text{number of turns on secondary}}$$

Show clearly how you work out your answer.

.....

.....

.....

.....

p.d. across secondary = ... V

(2 marks)

4 (b) The coils of the transformer are made of insulated wire.

Why is the wire insulated?

.....

.....

(1 mark)

4 (c) (i) What material is the core of a transformer made from?

.....

(1 mark)

4 (c) (ii) Why is the core made from this material?

.....

.....

(1 mark)

5

Turn over for the next question