

**7 (a)** In the National Grid, very large step-up transformers link power stations to the transmission cables.

A transformer used for this purpose has 800 turns on its primary coil and 12 800 turns on its secondary coil. The p.d. (potential difference) across its primary coil is 25kV.

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

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

Show clearly how you work out your answer **and** give the unit.

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p.d. across secondary coil = .....  
(3 marks)

**7 (b)** The primary and secondary coils of a transformer are made of insulated wire.

Why is this insulation necessary?

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(1 mark)

**7 (c)** Describe what happens when an alternating potential difference is applied across the primary coil of a transformer.

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(3 marks)

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|   |
| 7 |

**END OF QUESTIONS**

