

GCSE Physics B (Twenty First Century Science)
J259/04 Depth in physics (Higher Tier)

Question Set 17

1* Electrical energy is transported across the country using the National Grid.

Transformers play a key role in this transportation.



Describe and explain the role of **transformers** in the transmission of electrical power from power stations to our homes.

You may include a labelled diagram of a transformer.

[6]

Total Marks for Question Set 17: 6

Resource Materials

Question Set No: 17

Equations in Physics

change in internal energy = mass \times specific heat capacity \times change in temperature

energy to cause a change in state = mass \times specific latent heat

for gases: pressure \times volume = constant
(for a given mass of gas and at a constant temperature)

$(\text{final speed})^2 - (\text{initial speed})^2 = 2 \times \text{acceleration} \times \text{distance}$

energy stored in a stretched spring = $\frac{1}{2} \times \text{spring constant} \times (\text{extension})^2$

potential difference across primary coil \times current in primary coil =
potential difference across secondary coil \times current in secondary coil

Higher tier only –

pressure due to a column of liquid = height of column \times density of liquid \times

g force = magnetic flux density \times current \times length of conductor

**potential difference across primary coil \div potential difference across secondary coil =
number of turns in primary coil \div number of turns in secondary coil**

change in momentum = resultant force \times time for which it acts

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