Practice Question Set For GCSE
**Subject : Physics**
**Paper-2 Topic : 13_Electromagnetic Induction**

**Name of the Student**:_____
**Max. Marks : 22 Marks** **Time : 22 Minutes**

Mark Schemes

Q1.

| Question number | Answer | Additional guidance | Mark |
|---|---|---|---|
| | explanation linking any two from:<br><br>(smaller currents) reduce heating effect (in cables) (1)<br><br>less energy / power wasted (in cables) (1)<br><br>increases efficiency (1) | accept thermal energy for heat energy<br><br>allow will not get (as) hot / heat loss is reduced<br><br>allow 2 marks for 'reduce(s) heat energy loss' | **(2)**<br>**AO1** |

Q2.

| Question number | Answer | Additional guidance | Mark |
|---|---|---|---|
| | explanation linking any two from:<br><br>(smaller currents) reduce heating effect (in cables) (1)<br><br>less energy / power wasted (in cables) (1)<br><br>increases efficiency (1) | accept thermal energy for heat energy<br><br>allow will not get (as) hot / heat loss is reduced<br><br>allow 2 marks for 'reduce(s) heat energy loss' | **(2)**<br>**AO1** |

Q3.

| Question Number: | Answer | Mark |
|---|---|---|
| (i) | a power station | (1)<br>AO 1 1 |

| Question Number: | Answer | Mark |
|---|---|---|
| (ii) | the national grid | (1)<br>AO 1 1 |

| Question Number: | Answer | Mark |
|---|---|---|
| (iii) | heat loss is reduced | (1)<br>AO 1 1 |

Q4.

| Question Number: | Answer | Mark |
|---|---|---|
| (i) | a power station | (1)<br>AO 1 1 |

| Question Number: | Answer | Mark |
|---|---|---|
| (ii) | the national grid | (1)<br>AO 1 1 |

| Question Number: | Answer | Mark |
|---|---|---|
| (iii) | heat loss is reduced | (1)<br>AO 1 1 |

Q5.

| Question Number: | Answer | Additional Guidance | Mark |
|---|---|---|---|
| | substitution (1)<br>$(I_s) = \frac{230 \times 0.02}{5.0}$<br>evaluation (1)<br>0.9(A) | accept 0.92 (A)<br>award full marks for the correct answer without working | **(2)**<br>AO 2 1 |

Q6.

| Question Number: | Answer | Additional Guidance | Mark |
|---|---|---|---|
| | substitution (1)<br>$(I_s) = \frac{230 \times 0.02}{5.0}$<br>evaluation (1)<br>0.9(A) | accept 0.92 (A)<br>award full marks for the correct answer without working | **(2)**<br>AO 2 1 |

Q7.

| | | Indicative Content | Mark |
|---|---|---|---|
| | | A comparison including some of the following ideas<br>• Transformers can be used or voltages/currents can be changed/transformed<br>• AC (can transmit) at lower current/high(er) voltage<br>• National Grid is (usually) over ground (DC cables (were) underground)<br>• Less energy lost in transmission<br>• National Grid system can supply to customers further away<br>• Possible to create a grid linking power stations<br>• More flexibility in voltage for consumer<br>• Consumer can draw large(r) current<br>• More flexibility in power drawn<br>• Great(er) range of devices can be powered Ignore methods of electricity production | **(6)**<br>**Exp** |
| **Level** | **0** | No rewardable content | |
| **1** | **1 - 2** | • a limited (maybe implied) comparison giving one fact e.g: AC can be at high(er) voltage OR the National Grid can supply houses not close to a power station/ further (away/than the New York system.)<br>• the answer communicates ideas using simple language and uses limited scientific terminology<br>• spelling, punctuation and grammar are used with limited accuracy | |
| **2** | **3 - 4** | | |

| | | |
|---|---|---|
| | | • a simple comparison including two ideas which may be linked or not eg Nat. Grid can supply whole country and can be used for more appliances (than just lighting). e.g: AC can be transmitted further (than DC) (because it) wastes less energy<br>• the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately<br>• spelling, punctuation and grammar are used with some accuracy |
| **3** | **5 - 6** | • A detailed comparison including at least three ideas, with at least one direct link between two of them.<br>• e.g. AC can be transmitted further (than DC) because AC can be transformed to lower current/high(er) voltages.<br>OR<br>AC can be transformed to lower current/high(er) voltages.<br>Greater range of devices used.<br>• the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately<br>• spelling, punctuation and grammar are used with few errors |

Q8.

| Question Number: | Answer | Mark |
|---|---|---|
| | D transformers have primary and secondary coils.<br><br>**The only correct answer is D**<br><br>***A*** *is not correct because transformers can step-up and step-down voltages*<br>***B*** *is not correct because transformers can step-up and step-down voltages*<br>***C*** *is not correct because transformers only work with alternating current* | **(1)**<br>AO 1 1 |

Q9.

| Question Number: | Answer | Mark |
|---|---|---|
| | D transformers have primary and secondary coils.<br><br>**The only correct answer is D**<br><br>***A*** *is not correct because transformers can step-up and step-down voltages*<br>***B*** *is not correct because transformers can step-up and step-down voltages*<br>***C*** *is not correct because transformers only work with alternating current* | **(1)**<br>AO 1 1 |