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

Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

Question Number	Answer	Acceptable answers	Mark
(a)(i)	60 (kW h/ units) (1) 60 x 20 (= 1200) (p) (1)	15459 - 15399 £12 ecf Award full marks for correct answer with no working £12 scores 2 Power of Ten error scores maximum 1 60 in answer space with no working scores 1	**(2)**

Question Number	Answer	Acceptable answers	Mark
(a)(ii)	60 / 15 (1) 4 (kW) (1)	Allow ecf from 6(a)(i) marking point 1 Award full marks for correct answer with no working	**(2)**

Question Number	Answer	Acceptable answers	Mark
(b)	An explanation linking any two of: • increase voltage (1) • decrease current (1) • reduce {loss / waste} of {energy / heat} (1)	Increase efficiency (of energy transmission) Ignore "more efficient" by itself Accept power instead of energy Accept no energy loss	**(2)**

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Question Number		Indicative content	Mark
QWC	*** (c)**	A description to include some of the following points • speed of movement • stronger / more powerful (ORA) magnet • more turns / coils (ORA) • iron core • reversing movement • turning the magnet round • effect of any / each change • more conducting / less resistant wire • allow stronger current • allow ammeter reading / recording / voltage for current • allow moving coil Correct ideas but using inaccurate scientific terminology • larger / bigger magnet • more / longer movement Ignore • irrelevant information • speeds up current or more electricity	**(6)**
Level	**0**	no rewardable material	
1	**1-2**	• a limited description of any one change e.g. use more coils **OR** a stronger magnet. • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy	
2	**3-4**	• a simple description of any two different changes **OR** one change and its effect e.g. use more coils and a weaker magnet **OR** more coils more current • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy	
3	**5 - 6**	• a detailed description of a change linked to its effect and a second different change e.g. using more turns of wire makes a bigger current. Moving the magnet out. • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors	

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Q2.

Question Number		Indicative Content	Mark
QWC	*	An explanation including some of the following points • a current/voltage/emf is induced when there is relative movement between a magnet and a coil of wire • the current is bigger when the movement is faster • the current is alternating/regularly changing direction • the current is zero when the magnet is not moving • points P and R on the graph correspond to the fastest movement of the magnet • the magnet is changing direction at points O, Q, S on the graph (quoting positive and negative current values from graph is sufficient to indicate a change in direction of current on graph) • the magnet is at the top/bottom of its movement at points O, Q, S on the graph • the magnet is not moving at points O, Q, S on the graph IGNORE references to number of turns or stronger magnet	**(6)**

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Level	0	No rewardable content
1	1 - 2	• a limited explanation linking induced current to idea of movement of magnet OR limited reference linking graph to type of current with no link to model e.g. magnet moving in coil (induces a current) / (magnetic) field lines cut coil OR (the graph shows) an alternating current • spelling, punctuation and grammar are used with limited accuracy • the answer communicates ideas using simple language and uses limited scientific terminology
2	3 - 4	• a simple explanation linking the motion of the magnet to the size/direction of the induced current OR {a limited explanation linking induced current to idea of movement of magnet AND limited reference linking graph to type of current with no link to model} e.g. Magnet moving in the coil induces a current. The faster it moves the bigger the induced current. OR Magnet moving in the coil induces a current. When the magnet changes direction, the current changes direction. OR Magnet moving in the coil induces a current. The graphs shows an alternating current. OR Magnet moving in the coil induces a current. The current is positive at P and negative at R. • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately
3	5 - 6	• a detailed explanation linking the motion of the magnet to the size/direction of the induced current AND reference to graph for one factor e.g. Magnet moving in the coil induces a current. The faster it moves the bigger the induced current. The magnet is moving fastest at point P on the graph. OR Magnet moving in the coil induces a current. When the magnet changes direction the current changes direction. At P and R the magnet is moving in opposite directions. OR Magnet moving in the coil induces a current. The current is positive at P and negative at R. The magnet is moving up at P and down at R. • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors

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