Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 3_ Conservation of Energy

Name of the Student:_____
Max. Marks : 13 Marks **Time : 13 Minutes**

Mark Schemes

Q1.

	Answer	Acceptable answers	Mark
(a)	☒ **B** charge		**(1)**
(b)	Substitution 12 × 230 (1) evaluation 2800 (W) (1)	2760 (W) give full marks for correct answer, no working Power of 10 error max. 1 mark.	**(2)**
(c)	Conversion 0.4 (kW) (1) Substitution 0.4 × 10 ×15 (p) (1) or 0.4 × 10 × 0.15 (£) Evaluation 60(p) or £0.6 (1)	give marks for correct answer, no working 60(p) or £0.6 (3) 60,000(p) or £600 (2) 6 to any other power of 10 (1) (400/40/4) × 10 × (15/0.15) gains one mark if no mark can be awarded for evaluation.	**(3)**

		Indicative Content	Mark
QWC	***(d)**	A discussion including some of the following points  **Energy saving lamp** **Advantages** • Saves energy / uses energy more efficiently • Cost efficient • Lasts longer • Lower power (needed) • Less fossil fuels burnt • Cool to touch • Efficiency 20% • Lasts 9000 hours longer • Lasts 10 times longer • Produces 4 times as much light energy for every 100J of electrical energy supplied. • More readily available **Disadvantages** • Higher initial cost • May contain harmful gases • Takes longer to reach maximum brightness • Not such a bright light • Costs 5 times as much • Costs £1.20 more **Filament lamp** **Disadvantages** • Wastes more energy • Less efficient • Shorter lifetime • Higher power (needed) • More fossil fuels burnt • Gets very hot • Only 5% efficient • Wastes 95% of energy supplied • Uses 4 times as much power • Less readily available **Advantages** • Costs less to buy • Do not contain harmful gases • Lights immediately • Bright light	**(6)**

		Table of information given in the question Energy saving lamp: power = 15 W; Cost = £1.50; Lifetime = 10 000 hours; Produces 20J of light energy for every 100J of electrical energy supplied Filament lamp: power = 60W; Cost = £0.30; Lifetime = 1000 hours; Produces 5J of light energy for every 100J of electrical energy supplied
Level	**0**	No rewardable content
1	**1 - 2**	• A limited description of one advantage or one disadvantage e.g. energy saving lamps last a long time/ filament lamps get very hot **OR** A correct value quoted from information with no comparison. • 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 two different advantages / disadvantages e.g. energy saving lamps cost more but last longer / filament lamps have a short life time and use more power **OR** Correct values quoted from table and used to provide two comparisons without calculations • 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 two different advantages / disadvantages using a **quantitative** comparison. e.g. energy saving lamps cost 5 times more but last 10 times longer. / Energy saving lamps produce 4 times as much light energy for every 100J of electrical energy supplied and are much more efficient. / Energy saving lamps last 9,000 hours longer than and they use less power. • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors

Q2.

Question Number	Answer	Mark
	B. when there are energy transfers, the total energy does not change ***A*** *is not correct because the total energy does not reduce* ***C*** *is not correct because the total energy does not increase* ***D*** *is not correct because there must be no net change in the total energy*	**(1)** **AO1**