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

Mark Schemes

Q1.

	Answer	Additional guidance	Mark
	select correct equation (1) $KE = ½ \times m \times v^2$ substitution (1) (*KE* =) ½ × 70 × 8(.0)$^{(2)}$ evaluation (1) (*KE* =) 2200 (J)	 ignore attempts to convert kg to g for this MP only allow numbers that round to 2200 e.g. 2240 280 or 35 x 8 seen scores 2 marks award full marks for the correct answer without working.	**(3)** **AO2**

Q2.

Question Number	Answer	Additional guidance	Mark
	substitution (1) ½ x 8 x 1.5(^{2}) calculation of v^2 (1) 2.25 evaluation (1) 9(.0) (J)	9000 (J) scores 2 marks 6(.0)(J) scores 2 marks 6000 (J) scores 1 mark award full marks for the correct answer without working	**(3)**

Q3.

Question number	Answer	Additional guidance	Mark
	substitution (1) $(v^2) = \frac{950 \times 2}{35}$ evaluation of v^2 (1) 54(.29) evaluation of v (1) (v =) 7.4 (m/s)	 accept values that round to 7.3(m/s) or 7.4(m/s) accept answer of 7 (one sig. fig.) award 2 marks for an answer that rounds to 54 (m/s) if no other mark scored allow 1 mark for an answer that rounds to 0.23 (m/s) (use of mass in g) award full marks for correct answer without working	**3** **AO2.1**

Q4.

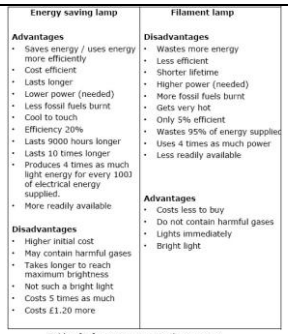
Question number	Answer	Additional guidance	Mark
(i)	substitution Time = 37/ 25 (1) Evaluation (1) = 1.5 (s)	 Allow 1.48 (s) full marks will be awarded for correct numerical answer without working	(2)
Question number	**Answer**	**Additional guidance**	**Mark**
(ii)	substitution K.E. = 0.5 x 1300 x 20^2 (1) evaluation (1) = 260,000 J	 260 kJ full marks will be awarded for correct numerical answer without working	(2)

Q5.

Question number	Answer	Additional guidance	Mark
	Calculation of area (1) 7 × 11 Substitution (1) 77 × 0.12 Answer (1) 9.2 (J)	77 ecf area award full marks for correct numerical answer without working	 (3)

Q6.

		Indicative Content	Mark
QWC	*	A discussion including some of the following points	**(6)**

		 Table of information given in the question Energy saving lamp | Filament lamp power =15 W | power =60W Cost = £1.50 | Cost = £0.30 Lifetime = 10 000 hours | Lifetime = 1000 hours Produces 20J of light energy for every 100J of electrical energy supplied | 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

Q7.

Question number	Answer	Additional guidance	Mark
	A description to include: mention relevant energy store such as GPE or chemical (1) 'correct' transfer in context (1)	 allow KE or mechanical or thermal or heat chemical to (G)PE or chemical to KE (in lifting) allow misread GPE to KE/thermal on slope Allow KE to GPE in lifting	**(2)**