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) $(KE =)\ ½ \times 70 \times 8(.0)^{(2)}$ 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	Marks
(i)	substitution (1) $(m=)\frac{2\times9300}{15^2}$ 225 for v^2 (1) evaluation (1) 83 (kg)	 $(m=)\frac{18600}{15^2}$ 82.7 / 82.6 / 82.67 / 82 (kg) etc. award full marks for correct numerical answer without working	**(3)**

Question number	Answer	Additional guidance	Marks
(ii)	an answer that combines the following points of understanding to provide a logical description: • (as) <u>kinetic energy</u> (store) decreases (1) • (so) thermal energy (store) increases (dissipating to the surroundings) (1)	 <u>KE</u> at beginning idea kinetic energy becomes heat (energy) – 2 marks ignore sound for this mark	**(2)**

Q4.

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**

Q5.

Question number	Answer	Additional guidance	Mark
(i)	Substitution (1) PE = 7.26 x 10 x 1.3 Answer (1) 94.4 (J)		(2)

Question number	Answer	Additional guidance	Mark
(ii)	An explanation that combines identification - application of knowledge (1 mark) and reasoning/justification - application of understanding (1 mark): • (energy stored changes between) gravitational potential energy, kinetic energy (1) • Potential energy increases as it rises / decreases as it falls. (1)	Ignore reference to energy change after hitting the ground (eg sound / heat)	(2)