Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 8_Energy

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
(i)	recall and substitution into (1) gpe = m x g x h (gpe) = 4.5 x 10 x 20 evaluation (1) 900(J)	 allow 90(J) for 1 mark award full marks for the correct answer without working	(2)

Question number	Answer	Additional guidance	Mark
ii	900(J)	allow ecf from bi	(1)

Question number	Answer	Additional guidance	Mark
iii	recall and substitution (1) power = work done / time taken (power =) 900 / 4 evaluation (1) 200 (W)	allow ecf from bi or bii accept 230(W), 225(W) award full marks for the correct answer without working	(2)

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Q2.

Question number	Answer	Additional guidance	Mark
(i)	select and substitute (1) ($\Delta GPE = m \times g \times \Delta h$) $= 1100 \times 3.7 \times 1.8 (\times 10^3)$ evaluation (1) 7 326 000 (J) evaluation to 2 s.f. (1) 7 300 000 (J)	 any number rounding to 7 300 000 7326 scores 1 mark **independent mark** - any final answer stated to 2 s.f.	**(3) AO2.1**

Question number	Answer	Additional guidance	Mark
(ii)	select and substitute (1) ($\Delta KE = \frac{1}{2} m \times v^2$) $= \frac{1}{2}\ 1100 \times 88^2$ evaluation (1) 4 300 000 (J)	ignore minus signs accept numbers that round to 4 300 000 (J) e.g. 4 259 200 (J) award full marks for the correct answer without working	**(2) AO2.1**

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Question number	Answer	Additional guidance	Mark
iii	A description linking **three** from: 1. work is done against / by gravity (1) 2. **idea of** work done by the thrusters / jets (on the rover) (1) 3. (work done) by air/atmospheric resistance on the parachute (and rover) (1) 4. this reduces the kinetic energy (store) (1) 5. (there is a) decrease in the gravitational potential energy (store) of the rover (1) 6. (there is a) transfer of chemical energy from the thrusters (1) 7. energy transferred to thermal energy (store) (1) 8. (transfer) mechanically (to the thermal store) (1)	**KEY: attempt to explain <u>how work done</u> contributes towards the energy changes / conservation of energy** if no other mark scored allow one mark for work = force x distance	**(3) AO2.1**

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Q3.

Question number	Answer	Additional guidance	Mark
		rearrangement and substitution in either order	(3) **AO2.1**
	substitution (1) 7440 = 645 x distance	allow substitution of correct values into a visible, incorrectly rearranged algebraic equation for this mark only	
	rearrangement (1) (distance =) $\frac{7440}{645}$	(distance =) $\frac{\text{work done}}{\text{force}}$	
	evaluation and rounding to 3sf (1) 11.5 (m)	11.53 (m) scores 2 marks only	
		award full marks for the correct answer without working	

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Q4.

Question number	Answer	Additional guidance	Mark
		rearrangement and substitution in either order	(3) **AO2.1**
	substitution (1) 7440 = 645 x distance	allow substitution of correct values into a visible, incorrectly rearranged algebraic equation for this mark only	
	rearrangement (1) (distance =) $\frac{7440}{645}$	(distance =) $\frac{\text{work done}}{\text{force}}$	
	evaluation and rounding to 3sf (1) 11.5 (m)	11.53 (m) scores 2 marks only	
		award full marks for the correct answer without working	

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