

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Mark Schemes

Q1.

Question Number	Answer	Additional Guidance	Mark
(i)	recall (1) $(\Delta PE) = mgh$ substitution and rearrangement (1) $h = \frac{1300}{7 \times 10}$ evaluation (1) 19 (m)	$1300 = 7 \times 10 \times h$ work done = force x distance accept answers that round up to 19 (m) (e.g. 18.57 (m)) award full marks for the correct answer with no working	(3) AO 1 1 AO 2 1

Question Number	Answer	Additional guidance	Mark
(ii)	recall (1) $KE = \frac{1}{2} m v^2$ substitution and rearrangement (1) $v = \sqrt{(2 \times 1100 \div 8)}$ evaluation (1) 17 (m/s)	$v^2 = \frac{2 \times 1100}{8}$ accept answers that round up to 17 (m/s) (e.g. 16.58 (m/s)) award full marks for the correct answer with no working	(3) AO 1 1 AO 2 1

Q2.

Question Number	Answer	Additional guidance	Mark
	reading energies from graph (1) 5.2 and 3.9 (kJ) substitution (1) e.g. $\frac{1.3 \times (100)}{5.2}$ evaluation (1) 25(%)	accept 5.0 to 5.4 and 3.7 to 4.1 0.18 to 0.32 18 to 32 (%) award full marks for the correct answer with no working	(3) AO 2 1

Q3.

Question Number	Answer	Mark
	<p>B natural gas is the only correct answer</p> <p><i>A geothermal is not a non-renewable source of energy</i></p> <p><i>C tidal is not a non-renewable source of energy</i></p> <p><i>D solar is not a non-renewable source of energy</i></p>	<p>(1)</p> <p>AO 1 1</p>

Q4.

Question Number	Answer	Additional guidance	Mark
	<p>an explanation linking:</p> <p>increased use of renewables/decrease use of nonrenewables (1)</p> <p>reason (1)</p>	<p>accept "them" as renewable</p> <p>accept reason why renewables are beneficial</p> <p>accept reason why non-renewable(s) are not beneficial</p>	<p>(2)</p> <p>AO 1 1</p>

Q5.

Question number	Answer	Additional guidance	Mark
(i)	<p>thermal (energy/store)</p> <p>(1)</p>	<p>energy dissipated</p> <p>energy wasted</p> <p>energy lost</p> <p>energy transferred to surroundings</p>	<p>1</p> <p>AO2.1</p>

		energy transferred due to friction	
		energy transferred due to air resistance	
		allow heat (energy)	
		ignore sound / not useful energy	

Question number	Answer	Additional guidance	Mark
(ii)	30 (J) (1)	accept -30 (J)	1 AO2.1

Question number	Answer	Additional guidance	Mark
(iii)	substitution (1) $\frac{950}{980} (\times 100)$ 980		2 AO2.1
	evaluation (1) 0.97 OR 97%	allow answers that round to 0.97 or 97% for 2 marks allow 1 mark for answers that round to 97 or 0.97% allow 1 mark for answers of 0.96 or 96% (truncated) award full marks for correct answer without working	

Q6.

Question number	Answer	Additional guidance	Mark
	(original) GPE – KE (at bottom) (1)	allow (idea of) input – output allow wrong way round (eg output-input)	(1)