Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 3_Conservation Of Energy

Name of the Student:_____
Max. Marks : 23 Marks **Time : 23 Minutes**

Mark Schemes

Q1.

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)**

Q2.

Question Number	Answer	Additional guidance	Mark
	An answer that includes: (measure) mass of the trolley (1) (measure) (vertical) height / h (1) repeat for a range of masses (1) plus **any one** from: method of identifying / measuring h (1) OR repeat firing with same mass (1)	 weigh the trolley NOT measure height of ramp e.g. use of reference mark accept "use ruler to measure height/h" for 2 marks NOT "use ruler to measure height of ramp"	**(4)**

Q3.

Question number	Answer	Additional guidance	Mark
	(vertical) height of slope (1) mass (of the toy car) (1)	 allow (in this context) weight if no other mark scored allow 1 mark for quoting either equation (Δ)GPE =mgh OR KE = ½ mv²	**(2)**

Q4.

Question Number	Answer	Additional Guidance	Mark
	one from causes heating of the surroundings (1) transferred to thermal energy of surroundings (1) increases the kinetic energy of molecules in the brake pads (1)	must include destination of final energy increases thermal energy of brake pads / wheels	**(1)**

Q5.

Question Number	Answer	Additional guidance	Mark
	Any **two** advantages such as: nuclear fuel • does not contribute to global warming • does not use up fossil fuels • occupies less space • does not involve a supply of air • gives less reason to surface/refuel • lasts longer	 accept reverse arguments does not produce carbon dioxide / greenhouse gases ignore cheaper, cleaner, greener, pollutes the sea, more efficient, unqualified safety, renewable	 (2)

Q6.

Question Number	Answer	Additional guidance	Mark
	reference to ΔPE = mg(Δ)h (1) relevant values from graph and one calculation to find energy (1) repeated with 2nd set of values (1)	can be seen in calculations e.g. 0.6 x 10 x 0.230 ≈ 1.4 (J) e.g. 1.0 x (10) x 0.138 ≈ 1.4 (J) must see calculations for mp2 and 3 1 mark for 2 calculations of mh with 'g' omitted (MP3)	**(3)**

Q7.

	Answer	Acceptable answers	Mark
(a)	**light** → electrical → **chemical** energy energy energy (1) (1)	These answers must be in the correct order	**(2)**
(b)(i)	350 (J)	400 – 50 (J)	**(1)**
(b)(ii)	Substitution 50 ÷ 400 (1) or $50 \times 100 / 400$ (%) Evaluation 13(%) (1)	12.5(%), 0.125, 0.13 or 1/8 Give full marks for correct answer, no working	**(2)**
(c)(i)	An explanation linking the following points: black (1) (because) (good) absorber (of thermal radiation) (1)	absorbs / takes in heat radiation **ignore** references to: attract good emitter light dark / darker	**(2)**
(c)(ii)	an explanation linking any **three** of the following points: • (bag / water) absorbs thermal energy / heat / radiation (1) • (bag / water) radiates / emits thermal energy / heat / radiation (1) • more heat radiated at higher temperature (1) • input and output are balanced (at steady temperature) (1)	idea of energy input e.g. "sun heats the bag up" idea of energy output idea of more heat lost (to surroundings)at higher temperature "absorbing heat at same rate as radiating heat" (3) **ignore** (sun) light / rays	**(3)**