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

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

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
(i)	An explanation that combines identification - understanding (1 mark) and reasoning/justification - understanding (1 mark): foam contains pockets of air OR foam / air is an insulator (1) which reduces energy transfer to surroundings (1)		(2)

Downloaded from www.merit-minds.com

Question number	Indicative content	Mark
(ii)	Answers will be credited according to the candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme. The indicative content below is not prescriptive and candidates are not required to include all the material which is indicated as relevant. Additional content included in the response must be scientific and relevant. **A03 (6 marks)** <u>Apparatus</u> • beakers • thermometer(s) • stop watch • foam and new material <u>Measurement of energy loss</u> • put material around cylinder/ beaker/calorimeter (or use foam jacket to start with) • put hot water into cylinder/beaker • measure temperature • measure temperature at intervals/at start / at finish/after fixed period of time • or measure time taken to cool to set temperature <u>Comparison between two materials</u> • change to other material around cylinder/beaker • compare the temperatures of the two after fixed time • or compare time taken to cool • the better insulator cools down more slowly <u>Measures to ensure fair test</u> • same mass of water • same thickness of material • same starting temperature • same time interval • same room temperature <u>Accuracy</u> • repeat readings • take average of readings	(6)

Downloaded from www.merit-minds.com

Level	Mark	Descriptor
	0	• No awardable content
Level 1	1–2	• Analyses the scientific information but understanding and connections are flawed. (AO3) • An incomplete plan that provides limited synthesis of understanding. (AO3)
Level 2	3–4	• Analyses the scientific information and provides some logical connections between scientific enquiry, techniques and procedures. (AO3) • A partially completed plan that synthesises mostly relevant understanding, but not entirely coherently. (AO3)
Level 3	5–6	• Analyses the scientific information and provide logical connections between scientific enquiry, techniques and procedures. (AO3) • A well-developed plan that synthesises relevant understanding coherently. (AO3)

Downloaded from www.merit-minds.com

Q2.

Question number	Answer	Additional guidance	Marks
	D wind		(1)

Downloaded from www.merit-minds.com

Q3.

Question Number	Answer	Mark
(i)	The only correct answer is **C 20 m/s** A is not correct because 0.2 m/s is too slow B is not correct because 2 m/s is too slow D is not correct because 200 m/s is too fast	(1)

Question Number	Answer	Additional guidance	Mark
(ii)	recall (1) (ΔGPE) = m × *g* × Δh substitution (1) (ΔGPE =) 75 x 10 x 20 evaluation (1) 15 000 (J)	NO PoT error NO ecf from wrong equation mgh or m x g x h 75 x 10 x 20 scores the first 2 marks accept 14700 (J) from using g = 9.8 (N/kg) award full marks for the correct answer without working	(3)

Downloaded from www.merit-minds.com

Q4.

Question Number	Answer	Additional guidance	Mark
(i)	substitution (1) (ΔGPE =) 65 x 10 x 200 evaluation (1) 1.3 x 10^5 / 130 000 (J)	 allow substitution mark with 65000 (g) allow 1 mark for answers that round to 1.3 with any other power of ten do not allow 13000 award full marks for the correct answer without working	**(2)** AO 2 1

Question Number	Answer	Additional guidance	Mark
(ii)	substitution (1) (KE) ½×65×$36(^2)$ squaring (1) 36^2 (=1296) (completing) evaluation (1) 42 120 / 4.2(1) x 10^4 (J)	 using 36 → 1170 (J) OR 36x2 → 2340 (J) scores 2 marks (apply power of ten error as well if occurring e.g. 117000 (J) gets 1 mark) award full marks for the correct answer without working allow 2 marks for answers that round to 4.2 with any other power of ten omitting ½ gives 84240(J) scores 2 marks	**(3)** AO 2 1

Downloaded from www.merit-minds.com