Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : Motion And Forces

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

Mark Schemes

Q1.

	Answer	Additional guidance	Mark
	(distance =) area (under graph) (1) substitution (1) ½(1.4 x 4) + (3.6 x 4) + ½(1x 4) evaluation (1) 19 (m)	may be seen on graph 2.8 + 14.4+ 2.0 ½ x [3.6+6] x 4 allow values that round to 19 (m) (e.g. 19.2..) award full marks for the correct answer without working if no other marks scored allow (4 x 6 =)24 (m) for 1 mark	**(3)** **AO3**

Q2.

	Answer	Additional guidance	Mark
	attempt to find momentum change (Δp) (1) (Δp) =± 1.4 substitution in to $F = \frac{\Delta p}{t}$ (1) $\frac{\pm 1.4}{70 \times 10^{-3}}$ evaluation (1) (±) 20 (N)	± 0.8 ± 0.6 allow (Δp) =± 0.2 allow $\frac{\pm 0.2}{70 \times 10^{-3}}$ answers which round to (±) 20 to any other power of 10 score 2 marks answers which round to (±) 2.9 scores 2 marks answers which round to (±) 2.9 to any other power of 10 score 1 mark award full marks for the correct answer without working	**(3)** **AO2**

Q3.

Question	Answer	Additional guidance	Mark
	identification of equation and substitution (1) $450 = m \times 0.35$ rearrangement and evaluation (1) $(m=) \frac{450}{0.35}$ 1300 (kg)	 accept values which round to 1300 (kg) e.g. 1286 (kg) award full marks for the correct answer without working	**2** **AO2.1**

Q4.

Question number	Answer	Additional guidance	Mark
(i)	substitution (1) (force =) $\frac{8.7}{0.35}$ evaluation (1) 25 (N)	use of force = $\frac{\text{change in momentum}}{\text{time}}$ allow numbers that round to 25 e.g 24 .8571 award full marks for correct answer without working.	**(2)** **AO2**

Question number	Answer	Additional guidance	Mark
(ii)	(magnitude) 25 (N) (1) (direction) down(wards)/ towards floor (1)	ecf from 7bi allow arrow drawn pointing down "south"	**(2)** **AO3**

Q5.

Question Number	Answer	Additional guidance	Mark
(i)	rearrangement (1) (m=) $\frac{F}{a}$ substitution (1) (m=) $\frac{5500}{2.2}$ evaluation (1) 2500(kg)	Rearrangement and substitution may be in either order (m=) $\frac{5.5}{2.2}$ ignore unit conversion until evaluation POT (power of ten) error, e.g. 2.5 (kg) award 2 marks award full marks for correct numerical answer without working If no other marks scored, award one mark for a clear conversion of units	**(3)**

Question Number	Answer	Additional guidance	Mark
(ii)	correctly identifies data points from the graph to calculate areas (1) use of distance = area under graph (1) substitution (1) (distance) = $\frac{(23-16)\times 13}{2}$ evaluation rounded to 2SF (1) 46 (m)	both 7 and 13 seen (distance) = $\frac{7\times 13}{2}$ (= 45.5) accept 45 (m) award full marks for correct numerical answer without working 91 scores 2 marks (incorrect area calculation using distance x time)	**(4)**

Q6.

Question number	Answer	Additional guidance	Mark
	Two stage calculation		**(4) AO2**
	substitution$_1$ (1)	use of $v^2 - u^2 = 2ax$ OR $\frac{1}{2} mv^2 = mgh$	
	$(v^2 - 0 =) 2 \times 10 \times 3.8$	76	
	evaluation of v (1)		
	$(v =)$ 8.7 (m/s)	allow numbers that round to 8.7 e.g. 8.718	
	substitution$_2$ (1)		
	$0.40 = m \times 8.7$	use of $p = mv$	
	rearrangement and evaluation (1)		
	$(m =)$ 0.046 (kg)	allow numbers that round to 0.046 e.g. 0.04598 award full marks for correct answer without working.	