Practice Question Set For GCSE
Subject : Physics
Paper-1 Topic : 2_Motion and Forces

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Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Mark Schemes

Q1.

	Answer	Additional guidance	Mark
(i)	conversion of time to s (1) (t =) 0.012 **OR** 12×10^{-3} **OR** 1.2×10^{-2} substitution (1) $(F=)\frac{(0.075 \times -15.0) - (0.075 \times 8.2)}{0.012}$ OR $(F=)\frac{(0.075 \times 15.0) - (0.075 \times -8.2)}{0.012}$ OR $(F=)\frac{0.075 \times (15.0 + 8.2)}{0.012}$ evaluation (1) (-)150 (N)	substitution and conversion in either order ignore signs on velocity accept time to any power of ten for substitution mark $(F=)\frac{(1.125) + (0.615)}{0.012}$	**(3)** **AO2**

		145 (N) scores 3 marks 145 (N) to any other power of ten scores 2 marks maximum 42.5 (N) scores 2 marks maximum 42.5 (N) to any other power of ten scores 1 mark maximum 93.75 (N) or 51.25(N) 1.933 scores 1 mark maximum award full marks for correct answer without working	

	Answer	**Additional guidance**	**Mark**
(ii)	Any two from: (forces are) equal / same size (1) (forces are) opposite (direction) (1) (forces) act on different bodies (1) same type of force (1)	no marks awarded for answers in terms of energy (forces are) one to the left, one to the right one (force) acts on racket, one acts on ball both are contact forces if no other marks awarded, allow action and reaction (acting) for 1 mark	**(2)** **AO1**

Q2.

Question Number	Answer	Additional guidance	Mark
(i)	substitution in $v^2 - u^2 = 2ax$ (1) $24^2 - 7.6^2 = 2 \times 3 \times x$ rearrangement (1) $(x =) \frac{24^2 - 7.6^2}{6}$ evaluation (1) 86 (m)	accept rearrangement and substitution in either order allow numbers that round to 86 (m) award full marks for the correct answer without working	**(3)**

Question Number	Answer	Additional guidance	Mark
(ii)	recall and substitution (1) $(a = \frac{v - u}{t})$ $3.0 = \frac{24 - 7.6}{t}$ rearrangement (1) $t = \frac{v - u}{a}$ OR $(t =) \frac{24 - 7.6}{3.0}$ evaluation (1) 5.5 (s)	Allow alternative method: average speed = distance / time i.e. 15.8 = 86(.37) / time (t =) 86(.37) / 15.8 allow numbers that round to 5.5 (s) OR numbers that round to 5.4 if using alternative method and distance = 86 award full marks for the correct answer without working no marks for t = d / (v-u) = 86(.37) / (24-7.6) giving 5.3 s as an answer	(3)

Q3.

	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**

Q4.

	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**