

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

Question Number	Answer	Additional guidance	Mark
	substitution (1) $(F=) 1200 \times 2.4$ evaluation (1) 2900 (N)	accept 2880 (N) award one mark for power of ten error award full marks for the correct answer with no working	(2) AO2

Q2.

Question Number	Answer	Additional guidance	Mark
	substitution (1) 1800×1.2 evaluation (1) 2200 (N)	accept $1800 \text{ kg} \times 1.2 \text{ m/s}^2$ reject 1800×1.2^2 2160 award full marks for the correct answer without working allow 1 mark total for 2200 OR 2160 with any other power of ten	(2)

Q3.

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 <u>rounded to 2sf</u> (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)

Q4.

Question number	Answer	Additional guidance	Mark
(i)	substitution (1) $(t =) \frac{10 - 6.2}{2.5}$ evaluation (1) $(t =) 1.5 \text{ (s)}$	$\frac{3.8}{2.5}$ allow $\frac{6.2 - 10}{2.5}$ or $\frac{-3.8}{2.5}$ 1.52 (s) allow $-1.5(2) \text{ (s)}$ award full marks for correct answer without working	2 AO2.1

Question number	Answer	Additional guidance	Mark
(ii)	substitution OR rearrangement (1) $(-)10^2 = 2 \times (-) 4.4 \times x$ evaluation (1) $(x =) 11 \text{ (m)}$	$(x) = \frac{v^2 - u^2}{2 \times a}$ $(x =) \frac{(-)10^2}{2 \times (-) 4.4}$ allow values that round to 11 (m) e.g. 11.36 (m) ignore negative sign in answer line	2 AO2.1

		accept 1.1(36) for one mark award full marks for correct answer without working	
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Q5.

Question number	Answer	Additional guidance	Mark
	substitution (1) $(v^2 - 0 =) 2 \times 10 \times 1.5$ evaluation (1) 5.5(m/s)	accept numbers that round to 5.5 e.g. 5.477 30(m/s) gains 1 mark for correct substitution but no square root taken award full marks for correct answer without working.	(2) AO2

Q6.

	Answer	Additional guidance	Mark
(i)	substitution (1) 12 x 10 evaluation (weight =) 120 (N)		(2) AO2

	Answer	Additional guidance	Mark
(ii)	rearrangement (1) $(g) = \frac{W}{m}$ substitution (1) $\frac{20}{12}$ evaluation (1) (g on Moon =) 1.7 (N/kg)	rearrangement and substitution in either order accept answers that round to 1.7 e.g. 1.67 (N/kg) award full marks for the correct answer without working 1.6 scores 2 marks 240 scores 1 mark 0.6 scores 1 mark 20 x 12 scores 1 mark <u>12</u> scores 1 mark 20	(3) AO3