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Exam Preparation and Free Resources

Name of the Student:_____

Max. **Marks : 17 Marks**

Time : 17 Minutes

Mark Schemes

Q1.

	Answer	Additional guidance	Mark
	selection (1) $p = m \times v$	allow mom(entum) = mass x velocity	(3) AO2
	substitution (1) $6.6\ (\times 10^{-26}) \times 480$		
	evaluation (1) $3.2 \times 10^{-23}\ (kg\,m/s)$	allow numbers that round to 3.2×10^{-23} e.g. 3.168×10^{-23}	
		award full marks for the correct answer without working	
		$6.6\ (\times 10^{-26}) \times 480$ seen scores MP1 and MP2, 2 marks	
		3.2 to any other power of ten scores MP1 and MP2, 2 marks	

Q2.

Question number	Answer	Additional guidance	Mark
CS5	substitution (1) $(t^2=)$ $\dfrac{2 \times 1.4}{10}$ evaluation (1) $(t =)$ 0.53 (s)	0.28 allow numbers that round to 0.53 e.g. 0.52915 award full marks for correct answer without working.	(2) AO2

Q3.

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

Question number	Answer	Additional guidance	Mark
(ii)	substitution OR rearrangement (1) $(-)10^2 = 2 \times (-) 4.4 \times x$	$(x =) \dfrac{v^2 - u^2}{2 \times a}$ $(x =) \dfrac{(-)10^2}{2 \times (-) 4.4}$	2 AO2.1
	evaluation (1) $(x =) 11$ (m)	allow values that round to 11	

| | | (m) e.g. 11.36 (m)

ignore negative sign in answer line

accept 1.1(36) for one mark

award full marks for correct answer without working | |

Q4.

Question	Answer	Additional Guidance	Mark
	substitution or rearrangement (1) $3500 = \dfrac{53 \times 4\,(-\,53 \times 0)}{time}$ or (time=)$\dfrac{change\ in\ momentum}{force}$	in either order $3500 = \dfrac{212}{time}$ (time =) $\dfrac{53 \times 4}{3500}$ (time =) $\dfrac{212}{3500}$ (t =) $\dfrac{mv - mu}{F}$	3 AO2.1
	evaluation (1) 6.06×10^{-2} (s) or 0.0606 (s) rounded to 2sf (1) 6.1×10^{-2} (s) or 0.061 (s)	accept 0.06057 (s) 0.06 (s) accept their calculation rounded to 2sf 0.060 scores 2 marks (truncation) award three marks for the correct answer given to 2sf without working	

Q5.

	Answer	Additional guidance	Mark
	rearrangement and substitution (1) $(t =) \dfrac{2.2\ (\times\ 10^{12})}{1.9\ (\times\ 10^{4})}$ evaluation (1) 1.2×10^{8} (s)	 allow numbers that round to 1.2×10^{8} e.g. 1.1579×10^{8} award full marks for correct answer without working.	(2) AO2

Q6.

Question Number	Answer	Additional guidance	Mark
	rearrangement (1) $$a = \frac{(v^2-)u^2}{2x}$$ substitution (1) $$a = \frac{(-)15^2}{2 \times 14}$$ evaluation (1) deceleration = 8(.04) (m/s^2)	rearrangement and substitution in either order 225/28 for 2 marks accept – 8(.04) award full marks for the correct answer with no working	(3) AO 2 1