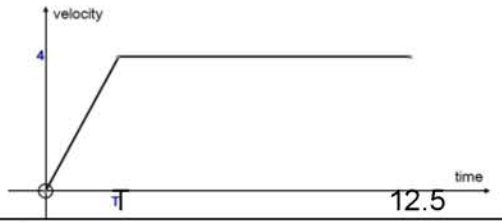
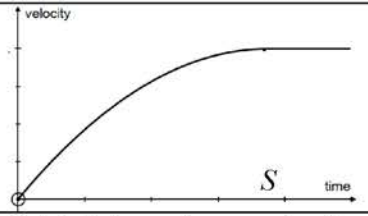
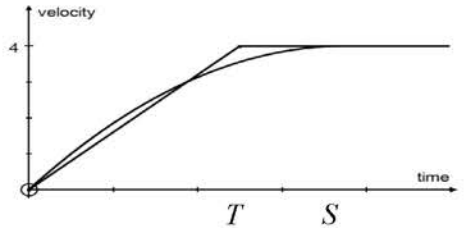
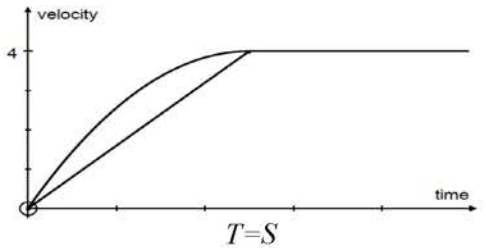
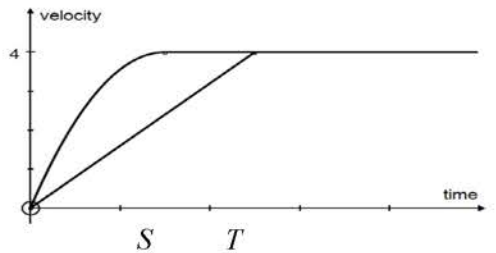
Question			Answer	Marks	AOs		Guidance
10	i			**B1** **B1** **[2]**	**1.1a** **1.1a**	Two line segments with one horizontal $(T, 4)$ and $(12.5, 4)$ labelled or indicated on scales. Allow their 2.5 marked instead of T. On axes labelled v and t oe	
	ii		$\frac{1}{2}\times 4\times\left(12.5+\left(12.5-T\right)\right)=45$ $T=2.5$	**M1** **A1** **[2]**	**3.1a** **1.1b**	Attempt to find area of trapezium or both the the triangle $\left(\frac{1}{2}T\times 4\right)$ and the rectangle $\left(12.5-T\right)\times 4$. cao	*Suvat* equations can be used for two phases of motion.
	iii		EITHER $a=\frac{4}{2.5}=1.6\ \text{m s}^{-2}$ $s=\frac{1}{2}\times 1.6t^2=0.8t^2$	**M1** **A1** **[2]**	**1.1a** **3.3**	Soi FT their T	
			OR $a=\frac{4}{2.5}=1.6\ \text{m s}^{-2}$ $v=\int a\ \text{d}t=1.6t+c$ When $t=0,\ v=0$ so $c=0$ $s=\int v\ \text{d}t=0.8t^2+c$ When $t=0,\ s=0$ so $c=0$ Giving $s=0.8t^2$	**M1** **A1** **[2]**		Soi FT their T Must be complete solution – do not award without consideration of $+c$ at least once	
	iv		$0.8t^2=4$ $t=\sqrt{5}=2.24\ \text{s}$	**B1FT** **[1]**	**3.4**	FT their quadratic model in (iii)	

Question	Answer	Marks	AOs		Guidance
v		B1 [1]	1.1a	Must have curved section of the graph decreasing gradient. *S* must be labelled.	
vi	Total distance (area under the graph) can only be equal if $S > T$ If $S > T$  If $S = T$  If $S < T$ 	E1 [1]	3.5c	Needs to give reason relating to the refinement of the model. Graphs not required	"It takes longer to reach 4 ms^{-1}" is not sufficient reason