Question Number	Scheme	Marks
4 (a)	[Continuous] uniform on the interval [0, 7]	B1
		(1)
(b)	mean = 3.5	B1
	standard deviation = $\sqrt{\frac{(7-0)^2}{12}}$	M1
	$= \frac{7}{\sqrt{12}} = 2.0207...$ awrt 2.02	A1
		(3)
(c)	By the CLT $\bar{T} \sim N\left(3.5, \frac{49}{552}\right)$	M1
	$P(3.4 < \bar{T} < 3.6) = P\left(\frac{3.4-"3.5"}{"\sqrt{\frac{49}{552}}"} < Z < \frac{3.6-"3.5"}{"\sqrt{\frac{49}{552}}"}\right) = \left[P(-0.34 < Z < 0.34)\right]$	M1 A1
	= 0.6331 – (1 – 0.6331) (Calculator gives 0.6314…)	M1
	= 0.2662 (Calculator gives 0.2628…) awrt 0.263 to 0.266	A1
		(5)
(d)	Large/ independent/ random sample allows use of CLT	B1
		(1)
	Notes	**Total 10**

(a)	**B1**	For the correct distribution stated (need uniform and correct interval) Allow U[0, 7] A fully correct pdf implies B1 e.g. $f(x) = \begin{cases} \frac{1}{7} & 0 \leq x \leq 7 \\ 0 & \text{otherwise} \end{cases}$
(b)	**B1**	For 3.5
	M1	For a correct method for finding the standard deviation
	A1	awrt 2.02 (Allow $\frac{7}{\sqrt{12}}$ or $\frac{7\sqrt{3}}{6}$ oe)
(c)	**M1**	For writing or using $N\left(3.5, \frac{49}{552}\right)$ oe Allow $N\left(3.5, \frac{2.02^2}{46}\right)$ or ft from part (b) e.g. if Po(7) given in part (a) allow $N\left(7, \frac{7}{46}\right)$
	M1	For standardising using either 3.4 or 3.6 and their mean and standard deviation
	A1	For a fully correct expression for either 3.4 or 3.6. May be implied by ± awrt 0.34
	M1	For $p - (1 - p)$ or $2(p - 0.5)$ oe
	A1	awrt 0.263 to 0.266
(d)	**B1**	Any suitable assumption