Question Number	Scheme	Marks
7 (a)	$\left[\mathrm{E}(X)=\right]\dfrac{k-6+k+10}{2} \quad \left[=k+2\right]$	M1
	$\left[\mathrm{Var}(X)=\right]\dfrac{(k+10-k+6)^2}{12} \quad \left[=\dfrac{64}{3}\right]$	M1
	$\bar{X} \sim \mathrm{N}\left(k+2, \dfrac{4}{15}\right)$	A1ft
		(3)
(b)	$17.5-2.5758\sqrt{"\dfrac{4}{15}"} < \mu < 17.5+2.5758\sqrt{"\dfrac{4}{15}"}$	M1 B1
	$17.5-2.5758\sqrt{"\dfrac{4}{15}"}-4 < k-2 < 17.5+2.5758\sqrt{"\dfrac{4}{15}"}-4$	M1
	$12.2 < \mathrm{Q}_1 < 14.8$ **awrt (12.2, 14.8)**	A1
		(4)

	Notes		Total 7
(a)	**M1**	For attempting to find the mean of X	
	M1	For attempting to find the variance of X	
	A1ft	For a correct distribution. Condone awrt 0.267, $\dfrac{64/3}{80}$ for $\dfrac{4}{15}$. They must have divided their Var(X) by 80.	
(b)	**M1**	For attempting at least one tail of confidence interval $17.5 \pm "z"(\text{their } \mathrm{SE}_{\bar{X}})$. Follow their z value, $1 < z < 3$ Alternatively, may estimate the lower quartile as 13.5 and attempt at least one tail of confidence interval for the lower quartile . Dividing by 80 again is M0 Follow through the $\sqrt{\mathrm{Var}(\bar{X})}$ Implied by the 2nd M mark	
	B1	For either awrt $+2.5758$ or -2.5758	
	M1	For attempting both tails of $17.5 \pm "z"(\text{their } \mathrm{SE}_{\bar{X}}) - 4$. Follow their z value, $1 < z < 3$	
	A1	$12.2 < \mathrm{Q}_1 < 14.8$ or awrt (12.2, 14.8)	