Question Number	Scheme	Marks
1(a)	X = Defects per 150 cm so $X \sim \text{Po}(7.5)$	
	$\frac{e^{-7.5} \times 7.5^5}{5!}$ or 0.2414 – 0.1321	M1
	0.10937… awrt 0.109	A1
		(2)
(b)	Y = Defects per 100 cm so $Y \sim \text{Po}(5)$	
	[P($Y < 4$) =] P($Y \leqslant 3$) = 0.2650	M1
	R = number of 100 cm planks with fewer than 4 defects so $R \sim \text{B}(6, "0.265")$	M1
	$\text{P}(R = 2) = {}^6C_2 \times "0.265"^2 (1 - "0.265")^4$	M1
	= 0.3074 awrt 0.307	A1
		(4)
(c)	T = Defects per 600 cm so $T \sim \text{Po}(30)$	
	$V \sim \text{N}(30, 30)$	M1
	$\text{P}(T < 28) \approx \text{P}\left(Z < \frac{27.5 - "30"}{\sqrt{"30"}} [= -0.46]\right)$	M1 M1
	$\left[\text{P}\left(Z < -0.46\right)\right]$ = 0.3228 (calc 0.32403…) awrt 0.323 – awrt 0.324	A1
		(4)
	Notes	**Total 10**

(a)	**M1**	For use of $\frac{e^{-\lambda} \times \lambda^5}{5!}$ (for any λ) **or** use of P($X \leqslant 5$) – P($X \leqslant 4$)
	A1	awrt 0.109
(b)	**M1**	For writing or using P($Y \leqslant 3$) (allow any letter) May be implied by 0.265(0)
	M1	For writing or using $\text{B}(6, "0.265")$ ft their 0.265
	M1	For use of ${}^6C_2 \times p^2 (1 - p)^4$ where p is a probability. This calculation implies the previous M1 mark
	A1	awrt 0.307
(c)	**M1**	For writing or using N(30, 30) (May be implied by standardisation)
	M1	For standardising using 26.5/27/27.5/28/28.5, their mean and their standard deviation
	M1	For a correct continuity correction (27.5)
	A1	Allow answers in the range awrt 0.323 – awrt 0.324