Question Number	Scheme		Marks
1 (a)	$\mathrm{P}(H=6)=\dfrac{\mathrm{e}^{-4}4^6}{6!}$ or $\mathrm{P}(H\le 6)-\mathrm{P}(H\le 5)=0.8893-0.7851$		M1
	$=0.10419\ldots$ $=0.1042$	awrt **0.104**	A1
			(2)
(b)	$J\sim \mathrm{Po}(8)$		B1
	$\mathrm{P}(J\le 7)-\mathrm{P}(J\le 2)=0.4530-0.0138$		M1
	$=0.4392$	awrt **0.439**	A1
			(3)
(c)	$K\sim \mathrm{N}(28,28)$		M1
	$\mathrm{P}(K>30)\approx \mathrm{P}\left(Z>\dfrac{30.5-28}{\sqrt{28}}\right)$		M1M1A1
	$=\mathrm{P}(Z>0.4724...)$		
	$=1-0.6808$		
	$=0.3192$ (calc 0.3183)	awrt **0.319/0.318**	A1
			(5)
(d)(i)	The p(robability)/0.97 is not small oe		B1
			(1)
(ii)	$L\sim \mathrm{Po}(3)$		B1
	$\mathrm{P}(L\le 4)=0.8153$	awrt **0.815**	M1A1
			(3)
	Notes		**Total 14**
	Correct answers imply all marks in each part of this question.		

1(a)	**M1**	Allow any value for lambda $\dfrac{\mathrm{e}^{-\lambda}\lambda^6}{6!}$ or $\mathrm{P}(H\le 6)-\mathrm{P}(H\le 5)$
	A1	awrt 0.104
(b)	**B1**	Writing Po(8). This may be implied by a correct answer or sight of awrt 0.453 or awrt 0.0138 or awrt 0.0424 or awrt 0.313
	M1	$\mathrm{P}(J\le 7)-\mathrm{P}(J\le 2)$ oe or (awrt 0.453 – awrt 0.0138)
	A1	awrt 0.439
(c)	**M1**	Using normal approximation with mean = variance = 28 (May be seen in standardisation which takes priority) or writing N(28,28)
	M1	$\pm\left(\dfrac{30.5 \text{ or } 30 \text{ or } 29.5 \ - \ \text{their mean}}{\text{their sd}}\right)$ If they have not given a mean and a variance, they must be correct here.
	M1	Writing or using a continuity correction 30 ± 0.5
	A1	Correct standardisation with 30.5 or awrt 0.47
	A1	awrt 0.319/0.318
(d)(i)	**B1**	Probability is not small (too large). Allow mean ≠ variance. Do not allow e.g. '*np* too large/*np* > 10' on its own. Ignore extraneous non-contradictory comments.
(ii)	**B1**	Writing or using Po(3)
	M1	Writing or using $\mathrm{P}(L\le 4)$ oe
	A1	awrt 0.815