	A1	Or exact equivalent e.g. $0.0\dot{5}$

Question Number	Scheme	Marks
7(a)	$[140p = 42 \Rightarrow] p = 0.3$	B1
	$\sigma^2 = 140 \times "0.3" \times (1 - "0.3")$	M1
	29.4	A1
		(3)
(b)(i)	${}^nC_2\left(\frac{1}{3}\right)^2\left(1-\frac{1}{3}\right)^{n-2}$	B1
(ii)	${}^nC_2\left(\frac{1}{3}\right)^2\left(1-\frac{1}{3}\right)^{n-2} = {}^nC_3\left(\frac{1}{3}\right)^3\left(1-\frac{1}{3}\right)^{n-3}$ or $"\frac{n(n-1)}{2\times1}\left(\frac{1}{3}\right)^2\left(1-\frac{1}{3}\right)^{n-2}" = \frac{n(n-1)(n-2)}{3\times2\times1}\left(\frac{1}{3}\right)^3\left(1-\frac{1}{3}\right)^{n-3}$ oe	M1
	$\frac{1}{2}\times\frac{2}{3} = \frac{1}{6}\times\frac{1}{3}\times(n-2)$ oe (may be implied by $6 = n - 2$)	M1
	$n = 8$	A1
		(4)
(c)	$\frac{e^{-\lambda}\lambda^r}{r!} = \frac{(r+2)e^{-\lambda}\lambda^{r+2}}{(r+2)!}$	M1
	$\frac{(r+2)!}{r!(r+2)} = \frac{\lambda^{r+2}}{\lambda^r}$	M1
	$\lambda = \sqrt{r+1}$	A1
		(3)

	Notes	**Total 10**
(a)	**B1**	oe cao
	M1	For use of $np(1-p) = \sigma^2$ ft their p
	A1	oe
(b)(i)	**B1**	For a correct expression. isw after a correct expression is seen
(ii)	**M1**	For setting up a correct equation ft (b)(i) Allow use of any clear notation for nC2 and nC3 Condone use of $p = 0.3$
	M1	For reducing to a correct linear equation in n Condone use of $p = 0.3$
	A1	cao
(c)	**M1**	For setting up a correct equation
	M1	For attempting to rearrange to have an equation with one side in terms of r and the other side in terms of λ $r + 1 = \lambda^2$ implies M1M1
	A1	oe e.g. $\lambda = \sqrt{\frac{(r+2)!}{r!(r+2)}}$ do not allow ±