Question Number	Scheme	Marks
6(a)	$\frac{9}{10}np = np(1-p) \Rightarrow 0.9 = 1-p$	M1
	$p = 0.1$	A1
		(2)
(b)	$\frac{e^{-\lambda}\lambda^{19}}{19!} = \frac{e^{-\lambda}\lambda^{20}}{20!}$	M1
	$\frac{20!}{19!} = \frac{\lambda^{20}}{\lambda^{19}}$	M1
	$\lambda = 20$	A1
	$np = \lambda \quad \Rightarrow \quad n = \frac{"20"}{"0.1"}$	M1
	$n = 200$	A1
		(5)
(c)	**Reasonable (o.e)** as n is large and p is small	B1
		(1)
	Notes	**Total 8**

(a)	**M1**	Use $\frac{9}{10}np = np(1-p)$ leading to an equation in p only
	A1	0.1 (correct answer with no incorrect working seen 2/2)
(b)	**M1**	For $\frac{e^{-\lambda}\lambda^{19}}{19!} = \frac{e^{-\lambda}\lambda^{20}}{20!}$ (Allow if 0.1n has been used for λ). (Condone if no brackets seen)
	M1	Cancelling $e^{-\lambda}$
	A1	$\lambda = 20$ or 0.1n=20 (Correct value seen M1M1A1) (Implied by n=200)
	M1	Use of $np = \lambda$. Follow through their λ / 0.1n and p (p must be a probability)
	A1	n = 200 (correct answer seen with no incorrect working (5/5))
(c)	**B1**	Reasonable (o.e) and a correct reason (allow Reasonable as mean is approximately equal to the variance (Sight of 18 needed))