Question Number	Scheme	Marks
4(a)(i)	$[P(X=1)] = 0.3389...$ **awrt 0.339**	B1
(ii)	$[P(X \leqslant 2)] = 0.8122$ **awrt 0.812**	B1
		(2)
(b)	$H_0: p = 0.05 \quad H_1: p \neq 0.05$	B1
	$Y \sim Po(7.5)$	M1
	$P(Y \geqslant 13) = 1 - P(Y \leqslant 12)$ or $1 - 0.9573$	M1
	$= 0.0426658...$ **awrt 0.0427**	A1
	"0.0427" > 0.025 (so do not reject H_0) / 13 is not in the critical region. o.e	dM1
	Insufficient evidence to suggest that the **proportion** of patients with the eye **condition** has changed	A1ft
		(6)

	Notes	Total 8
(a)(i)	**B1**	awrt 0.339
(ii)	**B1**	awrt 0.812
(b)	**B1**	for correct hypotheses and attached to H_0 and H_1 in terms of p. Accept $H_0: \lambda = 7.5$, $H_1: \lambda \neq 7.5$
	M1	for a correct Poisson distribution with $\lambda = 7.5$. May be implied by awrt 0.957 or awrt 0.043
	M1	$P(Y \geqslant 13) = 1 - P(Y \leqslant 12)$ or $1 - 0.9573$ or allow for CR: $X \geqslant 14$ **or** CR: $X \leq 2$ o.e
	A1	awrt 0.0427 or allow for fully defined critical region of CR: $X \leqslant 2$, $X \geqslant 14$ o.e
	dM1	dep on 2nd M1 for a correct non-contextual comparison ft on their "0.0427" or a comparison with their critical region
	A1ft	**dependent on all previous method marks**. For a correct contextual conclusion using the bolded words. (o.e) Condone "the optician's claim is incorrect" o.e
	SC	if no approximation (use of B (150,0.05)) is used leading to 0.03851568… then maximum score B1M0M1A0dM1A0ft
	SC	if a normal approximation (N (7.5,7.125)) is used leading to awrt 0.0305 – awrt 0.0307 then maximum score B1M0M1A1dM1A0ft. 2nd M1 is for working out *z*-value of 1.87 or better, 1st A mark for awrt 0.0305 – awrt 0.0307, 3rd M1 (dep) a correct comparison.