Question Number	Scheme	Marks
5(a)	Po(6)	
(i)	P($X = 7$) = $\mathrm{P}(X \leq 7) - \mathrm{P}(X \leq 6) = 0.7440 - 0.6063$	M1
	= 0.1377 awrt 0.138	A1
(ii)	$\mathrm{P}(X > 7) = 1 - \mathrm{P}(X \leq 7) = 1 - 0.744$	M1
	= 0.256	A1
		(4)
(b)	Let Y be the number of cars that pull into the service station	
	$Y \sim \mathrm{N}(\lambda, \lambda)$	M1
	$\lambda = 0.6n$	B1
	$\mathrm{P}(Y > 40) = 0.2266$	
	$\frac{40.5 - \lambda}{\sqrt{\lambda}} = 0.75$	M1M1B1
	$\lambda + 0.75\sqrt{\lambda} - 40.5 = 0$	A1
	$\sqrt{\lambda} = 6$	M1A1
	$n = 60$	A1
		(9)
	Notes	**Total 13**

(a)(i)	**M1**	For writing or using $\mathrm{P}(X \leq 7) - \mathrm{P}(X \leq 6)$ or use of $\frac{\mathrm{e}^{-\lambda}\lambda^7}{7!}$
	A1	Awrt 0.138
(ii)	**M1**	For writing or using $1 - \mathrm{P}(X \leq 7)$
	A1	Awrt 0.256
(b)	**M1**	Normal with mean = Var (can be letters or numbers) May be seen in a standardisation
	B1	Using $\lambda = 0.6n$ (can be seen at any stage)
	M1	Use of a continuity correction 40 ± 0.5
	M1	Standardising with 39.5, 40 or 40.5 and their mean and their standard deviation and set = to a z value where $0.74 < \lvert z \rvert < 0.76$
	B1	0.75 or better Allow – 0.75 if compatible with their standardisation
	A1	Fully correct equation in any form
	M1	Solving their 3TQ If the equation is incorrect then working must be shown. May be implied by $n = 60$
	A1	For $\sqrt{\lambda} = 6$ or $\lambda = 36$ May be implied by $n = 60$
	A1	For $n = 60$