Question	Scheme	Marks	AOs
3(a)	[A = no. of bulbs that grow into plants with blue flowers,] $A \sim B(40, 0.36)$	M1	3.3
	$p = P(A \geq 21) = 0.0240$	A1	1.1b
	C = no. of bags with more than 20 bulbs that grow into blue flowers, $C \sim B(5, p)$	M1	3.3
	So $P(C \leq 1) = 0.9945\ldots$ awrt 0.995	A1	1.1b
		(4)	
(b)	[T ~ number of bulbs that grow into blue flowers] $T \sim B(n, 0.36)$		
	T can be approximated by $N(0.36n, 0.2304n)$	B1	3.4
	$P\left(Z < \dfrac{244.5 - 0.36n}{\sqrt{0.2304n}}\right) = 0.9479$	M1	1.1b
	$\dfrac{244.5 - 0.36n}{\sqrt{0.2304n}} = 1.625$ or $\dfrac{244.5 - 0.36x^2}{0.48x} = 1.625$	M1 A1	3.4 1.1b
	$0.36n + 0.78\sqrt{n} - 244.5 = 0$	M1	1.1b
	$n = 625$	A1cso	1.1b
		(6)	
			(10 marks)

Notes:

(a) **M1:** for selecting an appropriate model for A

A1: for a correct value of the parameter p for C

M1: for selecting an appropriate model for C

A1: for awrt 0.995

(b) **B1:** for correct normal distribution

M1: for correct use of continuity correction equal to a z value where $|z| > 1$

M1: for standardisation with their μ and σ

A1: for a correct equation

M1: using a correct method to solve their 3-term quadratic

A1: 625 on its own cso