

Q	Marking instructions	AO	Marks	Typical solution
15(a)	Sums probabilities and equates to one PI	1.1a	M1	$0.03+0.15+0.22+0.31+0.09+p = 1$
	Obtains $p = 0.2$	1.1b	A1	$p = 1 - (0.03+0.15+0.22+0.31+0.09)$ $= 0.20$
	Subtotal		2	

Q	Marking instructions	AO	Marks	Typical solution
15(b)	Obtains at least one numerically correct term ACF	3.1b	M1	$P(\text{total is } 3)$ $= P(2 \cap 1) + P(1 \cap 2) + P(0 \cap 3) + P(3 \cap 0)$
	Obtains a correct numerically different second term which is added to the first term	3.1b	M1	$= 0.22 \times 0.15 + 0.15 \times 0.22 + 0.03 \times 0.31$ $+ 0.31 \times 0.03$
	Obtains 0.0846 OE	1.1b	A1	$= 2(0.033) + 2(0.0093)$ $= 0.0846$
	Subtotal		3	

Q	Marking instructions	AO	Marks	Typical solution
15(c)(i)	Identifies independence or defines independence in context Or Identifies that the plants must be representative of the population. Do not accept assumption probabilities staying the same	3.2b	E1	The number of flowers that grow on one plant must be independent of the number that grow on any other plant
	Subtotal		1	

Q	Marking instructions	AO	Marks	Typical solution
15(c)(ii)	Allow argument both ways with a valid contextualised reason from their assumption of independence from (c)(i) E.g. Could be independent as the plants are chosen randomly from a large batch, not dependent on each other for production of flowers Dependent because grown in the same soil, compete for resources, same batch of seeds. Or As plants are from a large batch, they are likely to be representative of the population	2.2b	E1	The plants may be grown in identical conditions and therefore the number of flowers that grow on each plant may not be independent.
	Subtotal		1	

	Question 15 Total		7	
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