1(a)	1 or 100%	B1	oe fraction, decimal or percentage eg $\frac{56}{56}$
	Additional Guidance		
	Do not accept answers in words only, eg 'Certain'		B0

1(b)	**Alternative method 1**		
	$\frac{3}{8}$ and $\frac{2}{7}$ or $\frac{6}{56}$	M1	may be seen on a tree diagram oe fraction, decimal or percentage eg $\frac{3}{28}$
	$1-(\frac{3}{8}\times\frac{2}{7})$ or $1-\frac{6}{56}$	M1dep	
	$\frac{50}{56}$	A1	oe fraction, decimal or percentage eg $\frac{25}{28}$
	Alternative method 2		
	$\frac{5}{8}$ and $\frac{4}{7}$ or $\frac{20}{56}$ or $\frac{5}{8}$ and $\frac{3}{7}$ or $\frac{3}{8}$ and $\frac{5}{7}$ or $\frac{15}{56}$ or $\frac{30}{56}$	M1	may be seen on a tree diagram oe fraction, decimal or percentage
	$\frac{5}{8}\times\frac{4}{7}+2(\frac{5}{8}\times\frac{3}{7})$ or $\frac{20}{56}+2(\frac{15}{56})$ or $\frac{20}{56}+\frac{30}{56}$	M1dep	oe eg $\frac{5}{8}\times\frac{4}{7}+\frac{5}{8}\times\frac{3}{7}+\frac{3}{8}\times\frac{5}{7}$
	$\frac{50}{56}$	A1	oe fraction, decimal or percentage eg $\frac{25}{28}$
	Additional Guidance		
	Condone a correct pair of fractions seen in a multiplication chain for M1 eg $\frac{3}{8}\times\frac{2}{7}\times\frac{1}{6}$ or $\frac{5}{8}\times\frac{2}{7}\times\frac{3}{8}\times\frac{4}{7}$ (includes $\frac{5}{8}\times\frac{4}{7}$)		M1

Q	Answer	Mark	Comment
2	$(P(3) =) \frac{1}{6}$ or $(P(1, 2) =)$ or $(P(2, 1) =)$ $\frac{1}{6} \times \frac{1}{6}$ or $\frac{1}{36}$	M1	oe 3 on first roll or 1 on first roll and 2 on second or 2 on first roll and 1 on second
	$\frac{1}{6}$ and $\frac{1}{6} \times \frac{1}{6}$ or $\frac{1}{6}$ and $\frac{1}{36}$ or $\frac{1}{6} \times \frac{1}{6} \times 2$ or $\frac{1}{36} \times 2$ or $\frac{2}{6} \times \frac{1}{6}$ or $\frac{2}{36}$	M1dep	oe
	$\frac{1}{6} + \frac{1}{6} \times \frac{1}{6} \times 2$ or $\frac{1}{6} + \frac{2}{36}$	M1dep	oe
	$\frac{2}{9}$ or $\frac{8}{36}$ or $\frac{4}{18}$	A1	oe fraction, decimal or percentage
	Additional Guidance		
	For the first and second marks, do not allow $\frac{1}{6}$ seen only as part of a multiplication string, but do allow it seen only in an addition		
	For the first and second marks, do not allow $\frac{1}{6} \times \frac{1}{6}$ (× 2) or $\frac{2}{6} \times \frac{1}{6}$ seen only as part of a longer multiplication string or in $1 - (\frac{1}{6} \times \frac{1}{6})$, but do allow them seen only in an addition		
	Allow working in decimals rounded correctly to at least 2 dp for M marks, but answer must be given correctly as $0.\dot{2}$ or $22.\dot{2}\%$		
	Ignore an incorrect simplification or conversion of a correct value		M1M1M1A1

Q	Answer	Mark	Comment
3	P(A ∩ B')	B1	

Q	Answer	Mark	Comments
4	$\frac{3}{8}$ (×) $\frac{2}{7}$ or $\frac{6}{56}$ or $\frac{3}{28}$	M1	oe fraction, decimal or percentage allow $\frac{2}{7}$ to be [0.285, 0.286] or [28.5, 28.6]% allow $\frac{6}{56}$ to be [0.107, 0.107143] or [10.7, 10.7143]% may be seen on a tree diagram allow 6 out of 56
	$\frac{1}{7}$ (×) $\frac{1}{4}$ (× 2) or $\frac{1}{28}$ (× 2) or $\frac{2}{28}$ or $\frac{1}{14}$	M1	oe fraction, decimal or percentage allow $\frac{1}{7}$ to be [0.142, 0.143] or [14.2, 14.3]% allow $\frac{1}{28}$ to be [0.035, 0.036] or [3.5, 3.6]% allow $\frac{2}{28}$ to be [0.071, 0.07143] or [7.1, 7.143]% may be seen on a tree diagram allow 1 out of 28 or 2 out of 28
	$\frac{6}{56}$ and $\frac{2}{28}$	A1	oe fractions, decimals or percentages allow 6 out of 56 and 2 out of 28
	Probabilities in comparable form and Option 1	A1ft	ft their $\frac{6}{56}$ and their $\frac{2}{28}$ with M2A0 correct comparisons include $\frac{3}{28}$ and $\frac{2}{28}$ $\frac{6}{56}$ and $\frac{4}{56}$ 0.107 and 0.071 10.7% and 7.1% 6 out of 56 and 4 out of 56

4 cont	**Additional Guidance**	
	Up to M2 may be awarded for correct work with no answer or incorrect answer, even if this is seen amongst multiple attempts	
	3 ways to win in Option 1 and 2 ways to win in Option 2 so Option 1	M0M0A0A0
	$\frac{3}{8} \times \frac{2}{7} = \frac{6}{56}$ $\quad$ $\frac{1}{7} \times \frac{1}{4} = \frac{1}{28}$	M1M1
	$\frac{6}{56}$ and $\frac{2}{56}$ and Option 1	A0A1ft
	Assuming replacement can score a maximum of M0M1A0A0	
	Choosing Option 1 cannot be implied by inequalities	

Q	Answer	Mark	Comment
5(a)	0.9×0.8^2 or 0.9×0.64	M1	oe
	0.576 or 0.58 or $\frac{72}{125}$	A1	oe fraction decimal or percentage
	Additional Guidance		
	Ignore any attempt to convert a correct answer		M1A1

Q	Answer	Mark	Comment
5(b)	**Alternative method 1**		
	(late, on time =) $(1 - 0.65) \times 0.65$ or 0.35×0.65 or 0.2275 or (on time, late =) $0.65 \times (1 - 0.8)$ or 0.65×0.2 or 0.13	M1	may be seen on tree diagram
	$(1 - 0.65) \times 0.65 + 0.65 \times (1 - 0.8)$ or $0.2275 + 0.13$	M1dep	oe
	0.3575 or $\frac{143}{400}$	A1	oe fraction, decimal or percentage Accept 0.358 or 0.36 with M1 scored
	Alternative method 2		
	(late, late =) $(1 - 0.65)^2$ or 0.35^2 or 0.1225 or (on time, on time =) 0.65×0.8 or 0.52	M1	may be seen on tree diagram
	$1 - (1 - 0.65)^2 - 0.65 \times 0.8$ or $1 - 0.1225 - 0.52$	M1dep	oe
	0.3575 or $\frac{143}{400}$	A1	oe fraction, decimal or percentage Accept 0.358 or 0.36 with M1 scored
	Additional Guidance		
	Up to M2 may be awarded for correct work, with no or incorrect answer, even if this is seen amongst multiple attempts		
	Ignore any attempt to convert a correct answer		M1M1A1