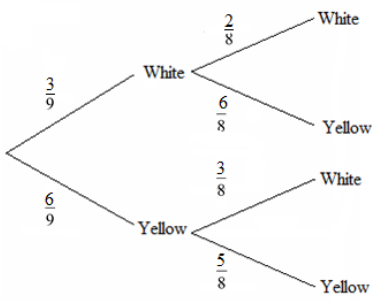
Question Number	Scheme	
7(a)		B1 M1A1 (3)
(b)	$"\frac{3}{9}"\times"\frac{6}{8}"+"\frac{6}{9}"\times"\frac{3}{8}"$, $=\frac{1}{2}$ oe	M1, A1
		(2)
(c)	$1-"\frac{6}{9}"\times"\frac{5}{8}"$ or $"\frac{3}{9}"+"\frac{6}{9}"\times"\frac{3}{8}"$, $=\frac{7}{12}$ oe	M1, A1
		(2)
(d)	$\frac{"\frac{3}{9}"\times"\frac{2}{8}"}{"\frac{7}{12}"}$, $=\frac{1}{7}$ oe	M1, A1
		(2)
(e)	$\frac{\frac{1}{2}n}{n}\times\frac{\frac{1}{2}n-1}{n-1}\times\frac{\frac{3}{8}n}{n-2}\times\frac{\frac{1}{8}n}{n-3}=\frac{3}{235}$ | $\frac{4x}{8x}\times\frac{4x-1}{8x-1}\times\frac{3x}{8x-2}\times\frac{x}{8x-3}=\frac{3}{235}$	M1M1
	$\frac{3}{128}n^3(\frac{1}{2}n-1)=\frac{3}{235}n(n-1)(n-2)(n-3)\left[\rightarrow 63n^3-3198n^2+8448n-4608=0\right]$	dM1
	$\left[235n^2=256(n-1)(n-3)\Rightarrow\right]21n^2-1024n+768=0$ **or** $\left[(3n-6)(21n^2-1024n+768)\right]$ $\left[\Rightarrow(n\neq 2\therefore)\right]21n^2-1024n+768=0$	A1
		(4)
	Notes	**Total 13**
(a)	B1 1st branches correct oe allow $0.\dot{3}$ and $0.\dot{6}$	
	M1 for one correct 2nd branch 2/8 and 6/8 oe or 3/8 and 5/8 oe	
	A1 for both correct 2nd branches 2/8 and 6/8 and 3/8 and 5/8 oe	
(b)	M1 for adding the two correct products of probabilities ft their probabilities	
	A1 0.5 oe Correct answer from no obvious incorrect working scores M1A1	
(c)	M1 correct method used. ft their probabilities	
	A1 allow awrt 0.583	
(d)	M1 for $\frac{p}{"7/12"}$ or $\frac{n}{7}$ where $n < 7$. num>denom is M0. Indeped. e.g. $\frac{"\frac{3}{9}"\times"\frac{2}{8}"\times"\frac{7}{12}"}{"\frac{7}{12}"}$ is M0	
	A1 allow awrt 0.143	
(e)	M1 for setting up the product of 4 probabilities with all of the denominators correct and equating to 3/235 For the first term allow ½ oe (condone RHS method in terms of n)	
	M1 a fully correct equation (condone RHS method in terms of n)	
	dM1 (dep on 2nd M mark) for forming a correct equation **in terms of *n*** removing all terms in n from the denominator. For RHS method, only award if x is replaced by $\frac{n}{8}$	
	A1 (dep on all M marks) for a correct equation with $b = -1024$ and $c = 768$	
NB:	Trial and improvement method → $n = 48$ satisfies the given conditions is M0M0M0A0	

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