Question	Answer	Marks	AO Element	Notes	Guidance
1(a)	$\frac{7}{8}$ cao	**2**		**M1** for $\frac{18 + 28 + 24}{80}$ oe	
1(b)	$\frac{25}{126}$ oe	**3**		**M2** for $[2\times]\left(\frac{3}{28} \times \frac{25}{27}\right)$ or $[2\times]\left(\frac{25}{28} \times \frac{3}{27}\right)$ oe or **M1** for either $\frac{3}{28}$ or $\frac{25}{27}$ or $\frac{25}{28}$ or $\frac{3}{27}$ If 0 scored, **SC1** for answer $\frac{75}{392}$ oe	
2(a)(i)	$\frac{3}{4}, \frac{1}{4}$ $\frac{2}{5}, \frac{3}{5}$ $\frac{2}{5}, \frac{3}{5}$	**2**		**B1** for one correct pair	
2(a)(ii)	$\frac{3}{10}$ oe	**2**		**FT** *their* tree diagram **M1** for $\frac{3}{4} \times \frac{2}{5}$	

Question	Answer	Marks	AO Element	Notes	Guidance
2(a)(iii)	$\frac{11}{20}$ oe	**3**		**M2** for $\frac{3}{4} \times \frac{3}{5} + \frac{1}{4} \times \frac{2}{5}$ or **M1** for $\frac{3}{4} \times \frac{3}{5}$ or $\frac{1}{4} \times \frac{2}{5}$	
2(b)	$\frac{36}{125}$ oe	**3**		**M2** for $\left(\frac{2}{5}\right)^2 \times \frac{3}{5} \times 3$ oe or **M1** for $\left(\frac{2}{5}\right)^2 \times \frac{3}{5}$	
2(c)	$\frac{3}{28}$ oe	**2**		**M1** for $\frac{3}{4} \times \frac{1}{7}$	
3	$\frac{147}{160}$ oe	**3**		**M2** for $\frac{1}{10} \times \frac{3}{4} + \frac{9}{10} \times \frac{15}{16}$ or **M1** for $\frac{1}{10} \times \frac{3}{4}$ or $\frac{9}{10} \times \frac{15}{16}$	
4(a)	$\frac{7}{15}$ oe	**1**			

Question	Answer	Marks	AO Element	Notes	Guidance
4(b)	$\frac{7}{15} \times \frac{6}{14} + \frac{6}{15} \times \frac{5}{14} + \frac{2}{15} \times \frac{1}{14}$ $= \frac{37}{105}$	**3**		**M2** for addition of two of $\frac{7}{15} \times \frac{6}{14} + \frac{6}{15} \times \frac{5}{14} + \frac{2}{15} \times \frac{1}{14}$ or **M1** for one of the products seen	

Question	Answer	Marks	AO Element	Notes	Guidance
4(c)	$\frac{29}{65}$ oe	**4**		**M3** for $\frac{7}{15}\times\frac{6}{14}\times\frac{5}{13}+3\times\frac{7}{15}\times\frac{6}{14}\times\frac{6}{13}$ $+3\times\frac{7}{15}\times\frac{6}{14}\times\frac{2}{13}$ oe or $1-3\left(\frac{8}{15}\times\frac{7}{14}\times\frac{7}{13}\right)-\left(\frac{8}{15}\times\frac{7}{14}\times\frac{6}{13}\right)$ oe or **M2** for the sum of at least two of $\frac{7}{15}\times\frac{6}{14}\times\frac{5}{13}$, $N\times\frac{7}{15}\times\frac{6}{14}\times\frac{6}{13}$, $N\times\frac{7}{15}\times\frac{6}{14}\times\frac{2}{13}$ seen or for $\frac{7}{15}\times\frac{6}{14}\times\frac{13}{13}$ or $\frac{7}{15}\times\frac{6}{14}+N\times\frac{7}{15}\times\frac{6}{14}\times\frac{k}{13}$ seen or **M1** for $\frac{7}{15}\times\frac{6}{14}\times\frac{5}{13}$ or $N\times\frac{7}{15}\times\frac{6}{14}\times\frac{6}{13}$ or $N\times\frac{7}{15}\times\frac{6}{14}\times\frac{2}{13}$	

Question	Answer	Marks	AO Element	Notes	Guidance
				seen If 0 scored **SC1** for $\frac{1519}{3375}$ oe	
5	$\frac{47}{66}$ oe	**4**		0.712[1…] **M3** for $2\left(\frac{5}{12}\times\frac{4}{11}\right)+2\left(\frac{4}{12}\times\frac{3}{11}\right)+2\left(\frac{5}{12}\times\frac{3}{11}\right)$ oe or $1-\left(\frac{5}{12}\times\frac{4}{11}+\frac{4}{12}\times\frac{3}{11}+\frac{3}{12}\times\frac{2}{11}\right)$ oe or **M2** for sum of 3 or more correct product pairs and no incorrect pairs or for $\frac{5}{12}\times\frac{4}{11}+\frac{4}{12}\times\frac{3}{11}+\frac{3}{12}\times\frac{2}{11}$ and no other pairs or **M1** for $\frac{k}{12}\times\frac{j}{11}$ seen If 0 scored **SC1** for answer $\frac{94}{144}$ oe	

Question	Answer	Marks	AO Element	Notes	Guidance
6(a)	30 2 16 48 47 5 20 72 77 7 36 120	**3**		**B2** for 9 or 10 correct or **B1** for 5, 6, 7 or 8 correct	
6(b)	$\frac{7}{10}$ oe	**2**		**M1** for $\frac{120 - 36}{120}$ oe or **B1** for 84 or for *their* 77 + *their* 7	
7(a)	$\frac{1}{4}$ oe	**1**			
7(b)	$\frac{3}{4}$ oe	**1**			
7(c)	$\frac{5}{8}$	**1**			
7(d)	1	**1**			
8(a)(i)	$\frac{3}{8}$ oe	**1**			
8(a)(ii)	1	**1**			
8(b)	60	**1**		**FT** *their* **(a)(i)**	

Question	Answer	Marks	AO Element	Notes	Guidance
9(a)	$\frac{11}{30}$ oe	**1**			
9(b)	$\frac{25}{30}$ oe	**1**			
9(c)	0	**1**			
10	0	**1**			
11(a)	0.96 or 96% or $\frac{24}{25}$ final answer	**1**			
11(b)	34 cao	**2**		**M1** for 0.04 × 850 oe	
12	[0].23 oe	**2**		**M1** for 1 – [0].27 – [0].18 – [0].32 oe	
13	$\frac{3}{10}$ oe	**1**			
14(a)	5 probabilities $\left(\frac{3}{8}\right.$ and $\left.\frac{5}{8}\right)$ oe correctly on the branches	**2**		**B1** for $\frac{3}{8}$ on first branch towards Blue or one correct pair on the second branch	

Question	Answer	Marks	AO Element	Notes	Guidance
14(b)	$\frac{9}{64}$ oe	**2**		**FT** *their* tree diagram for 2 marks **M1** for *their* $\frac{3}{8}$ × *their* $\frac{3}{8}$	
15	0.95 oe	**1**			
16	0.845 oe	**3**		**M2** for $0.7 \times 0.95 + (1 - 0.7) \times 0.6$ oe or **M1** for one of these products	
17(a)	$\frac{3}{4}$ oe	**1**			
17(b)	45	**1**		**FT** 60 × *their* **(a)** correctly evaluated	
18(a)	$\frac{9}{11}$	**1**			

Question	Answer	Marks	AO Element	Notes	Guidance
18(b)	$\frac{36}{121}$ oe	**3**		**M2** for $2 \times \frac{2}{11} \times \frac{9}{11}$ oe or **M1** for $\frac{2}{11} \times \frac{9}{11}$ oe If 0 scored **SC1** for $\frac{36}{110}$	
19	$\frac{5}{9}$ oe	**1**			
20(a)	111.25	**4**		**M1** for midpoints soi (25, 75, 112.5, 137.5, 175) **M1** for $\sum fx$ with x in correct interval including both boundaries **M1** (dep on 2nd **M1**) for $\sum fx \div 20$	
20(b)	2 7 11 17	**2**		**B1** for three correct	
20(c)	$\frac{3}{20}$ oe	**1**			

Question	Answer	Marks	AO Element	Notes	Guidance
21(a)	$\frac{3}{5} > \frac{1}{4}$ oe or $\frac{12k}{20k}$ and $\frac{5k}{20k}$ or 0.6 and 0.25 or 60% and 25%	**1**			
21(b)	$\frac{11}{20}$ oe	**3**		**M2** for $\frac{3}{5} \times \frac{3}{4} + \frac{2}{5} \times \frac{1}{4}$ oe or $1 - \frac{3}{5} \times \frac{1}{4} - \frac{2}{5} \times \frac{3}{4}$ oe or **M1** for $\frac{3}{5} \times \frac{3}{4}$ or $\frac{2}{5} \times \frac{1}{4}$ oe (but not as part of a larger product)	
22(a)	**B1** for range = 7 **B1** for mode = 21 **B2** for median = 22.5 **B2** for mean = 22.7 or 22.71…	**6**		**M1** for evidence of middle value **M1** for use of $\Sigma x \div 14$	
22(b)	$\frac{3}{14}$ oe	**1**			
					[Total: 87]