11	**(a)**	**(i)**	$\left(\frac{3}{25}\right)^2 \times \frac{1}{5}$ $(\times 3)$ $= \frac{27}{3125}$ or 0.00864 ISW	**M1** **A1** **[2]**	**3.1a** **1.1**	Correct product seen, not necessarily alone. Allow without "× 3" May be implied by the answer NB $\left(\frac{1}{5}\right)^3 = 0.008$ M0A0
11	**(a)**	**(ii)**	$\left(\frac{3}{25}\right)^2 \times \frac{22}{25} + \left(\frac{1}{5}\right)^2 \times \frac{4}{5} + \left(\frac{8}{25}\right)^2 \times \frac{17}{25} + \left(\frac{7}{25}\right)^2 \times \frac{18}{25} + \left(\frac{2}{25}\right)^2 \times \frac{23}{25}$ or 0.0127 + 0.032 + 0.0696 + 0.0564 + 0.00589 or $\frac{198}{15625} + \frac{4}{125} + \frac{1088}{15625} + \frac{882}{15625} + \frac{92}{15625}$ $= 0.177$ (3 sf) or $\frac{552}{3125}$ or $\frac{2760}{15625}$	**M1** **M1** **A1**	**3.4** **1.1** **1.1**	M2 for all 5 correct products M1 for 2 correct products Correct answer with no working scores M1M0A1 SC. If no marks scored, but all 20 cases listed: B1
			Alternative method. P(1st 2 the same) − P(all 3 same) $\left(\frac{3}{25}\right)^2 + \left(\frac{1}{5}\right)^2 + \left(\frac{8}{25}\right)^2 + \left(\frac{7}{25}\right)^2 + \left(\frac{2}{25}\right)^2$ $- \left(\left(\frac{3}{25}\right)^3 + \left(\frac{1}{5}\right)^3 + \left(\frac{8}{25}\right)^3 + \left(\frac{7}{25}\right)^3 + \left(\frac{2}{25}\right)^3\right)$ $= 0.177$ (3 sf) or $\frac{552}{3125}$	 **M2** **A1**		 M1 for either P(1st 2 the same) or P(all 3 same) correct

Question	Answer	Marks	AO	Guidance
	Alternative method using 20 cases			M2 for all 20 products
	$\left(\frac{3}{25}\right)^2\times\frac{1}{5}+\left(\frac{3}{25}\right)^2\times\frac{8}{25}+\left(\frac{3}{25}\right)^2\times\frac{7}{25}+\left(\frac{3}{25}\right)^2\times\frac{2}{25}$			
	or $0.00288 + 0.004608 + 0.004032 + 0.001152$			M1 for 8 correct products
	or $+\frac{45}{15625}+\frac{72}{15625}+\frac{63}{15625}+\frac{18}{15625}$			
	$+\left(\frac{1}{5}\right)^2\times\frac{3}{25}+\left(\frac{1}{5}\right)^2\times\frac{8}{25}+\left(\frac{1}{5}\right)^2\times\frac{7}{25}+\left(\frac{1}{5}\right)^2\times\frac{2}{25}$			
	or $+ 0.0048 + 0.0128 + 0.0112 + 0.0032$			
	or $\frac{3}{625}+\frac{8}{625}+\frac{7}{625}+\frac{2}{625}$			
	$+\left(\frac{8}{25}\right)^2\times\frac{3}{25}+\left(\frac{8}{25}\right)^2\times\frac{1}{5}+\left(\frac{8}{25}\right)^2\times\frac{7}{25}+\left(\frac{8}{25}\right)^2\times\frac{2}{25}$			
	or $+ 0.01229 + 0.0205 + 0.0287 + 0.00819$			
	or $+ \frac{192}{15625}+\frac{64}{3125}+\frac{448}{15625}+\frac{128}{15625}$			
	$+\left(\frac{7}{25}\right)^2\times\frac{3}{25}+\left(\frac{7}{25}\right)^2\times\frac{1}{5}+\left(\frac{7}{25}\right)^2\times\frac{8}{25}+\left(\frac{7}{25}\right)^2\times\frac{2}{25}$			
	or $+ 0.00941 + 0.0157 + 0.0251 + 0.00627$			
	or $\frac{147}{15625}+\frac{49}{3125}+\frac{392}{15625}+\frac{98}{15625}$			
	$+\left(\frac{2}{25}\right)^2\times\frac{3}{25}+\left(\frac{2}{25}\right)^2\times\frac{1}{5}+\left(\frac{2}{25}\right)^2\times\frac{8}{25}+\left(\frac{2}{25}\right)^2\times\frac{7}{25}$			
	or $0.000768 + 0.00128 + 0.00205 + 0.00179$			
	or $\frac{12}{15625}+\frac{4}{3125}+\frac{32}{15625}+\frac{28}{15625}$			
	$= 0.177$ (3 sf) or $\frac{552}{3125}$	**A1**		
		[3]		

Question			Answer	Marks	AO	Guidance
11	(b)		Basic scheme: Must refer to some aspect of the model that makes ≈3 goals per match unlikely Must mention or imply ≈3 goals per match EG: Current model seems to underestimate probabilities of higher numbers of goals Or about 3 goals per match, but mean in the model is < 3 Or about 3 goals per match, but mean = 2 or median = 2 Or model suggests more matches < than 3 than > 3 Or model suggests < 3 goals per match	**B1** **[1]**	**3.5a**	oe. Or eg P(X > 4) should be more than 0 or model suggests impossible to score more than 4 goals or model says P(3 or more) = 0.36 which is small NOT ≈3 goals per match, but P(X = 3) = $\frac{7}{25}$, too small. NOT ≈3 goals per match, but $(\frac{7}{25})^{10}$ is tiny NOT ≈3 goals per match unlikely given this model NOT 3 is not the most likely number of goals NOT Highest probability is 2 Ignore all else