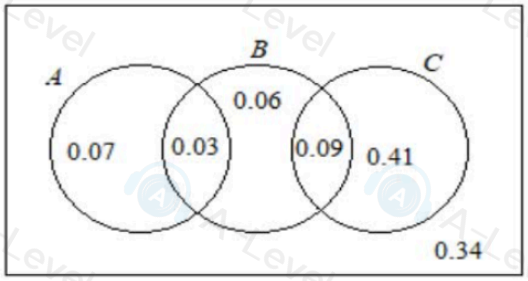
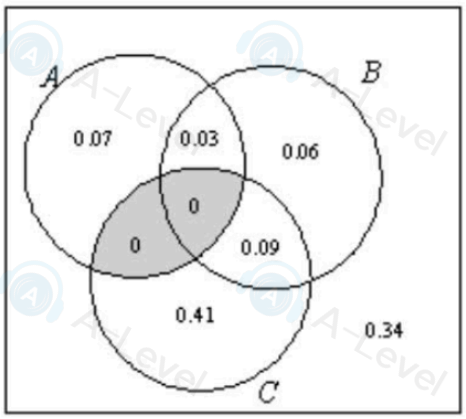
Qu	Scheme	Marks
6(a)	0.6	B1
		(1)
(b)	$\left[\mathrm{P}(A\cap B)=\right]0.1\times0.3$ **or** $0.3=\dfrac{\mathrm{P}(A\cap B)}{0.1}$	M1
	$0.25=0.1+\mathrm{P}(B)-\text{"0.03"}$ **or** $0.25=0.1+\mathrm{P}(B)-\mathrm{P}(A\cap B)$	M1
	$0.25=0.1+\mathrm{P}(B)-0.03$ **or** $0.3=\dfrac{\mathrm{P}(B)-0.15}{0.1}$ $\therefore$ P(B) = 0.18*	A1*
		(3)
(c)	 	M1 M1 B1ft B1ft A1
		(5)
	Notes	**Total 9**

Question Number	Scheme	Marks
3 (i) (a)	$w = 0.15$	B1
	$x = 0.7 - 0.15 = 0.55$	B1
	$y = 0.65 - 0.55 = 0.1$	B1
	$z = 1 - 0.15 - 0.55 - 0.1 = 0.2$	B1
		(4)
(b)	$'0.15' + '0.1' = '0.25'$	B1ft
		(1)
(c)	$[\mathrm{P}(C) \times \mathrm{P}(O)] = '0.65' \times '0.7' \neq '0.55' [= \mathrm{P}(C \cap O)]$ or $[\mathrm{P}(C \mid O) =] \dfrac{'0.55'}{'0.7'} \neq '0.65' [= \mathrm{P}(C)]$ oe	M1
	$'0.455' \neq '0.55'$ or $'0.7857'... \neq '0.65'$ [So not independent]*	A1*
		(2)
3 (ii) (a)	$\left[P(F \cup H) = \dfrac{2}{7} + \dfrac{1}{4} = \right] \dfrac{15}{28}$	B1
		(1)
(b)	$\dfrac{5}{8} = \dfrac{2}{7} + \mathrm{P}(G) - \dfrac{2}{7}\mathrm{P}(G)$	M1
	$\mathrm{P}(G) = \dfrac{\frac{5}{8} - \frac{2}{7}}{1 - \frac{2}{7}} = \dfrac{19}{56} \div \dfrac{5}{7}$	dM1
	$\mathrm{P}(G) = \dfrac{19}{40}$	A1
		(3)
(c)	$\left[P(F \cap G) = \dfrac{2}{7} \times '\dfrac{19}{40}' = \right] \dfrac{19}{140}$	B1ft
		(1)
	Notes	**Total 12**

Question	Scheme	Marks
4 (i)(a)	$p+q=\frac{7}{25}$ oe $\quad q+r=\frac{1}{5}$ oe $\quad p+r=\frac{8}{25}$ oe	M1 M1 M1
	$2p+2q+2r=\frac{7}{25}+\frac{1}{5}+\frac{8}{25}\left[=\frac{4}{5}\right]$*	A1* (4)
(i)(b)	eg $p+q+r+s=1$	M1
	$p=\frac{1}{5}$ oe $\quad q=\frac{2}{25}$ oe $\quad r=\frac{3}{25}$ oe $\quad s=\frac{3}{5}$ oe	A1 A1 A1 A1
		(5)
(ii)	$\frac{x}{x+5}+\frac{5}{x}=\frac{x^2+5(x+5)}{x(x+5)}$ or $\frac{x}{x+5}+\frac{5}{x}=\frac{x+5-5}{x+5}+\frac{5}{x}$	M1
	$=\frac{x^2+5x+25}{x^2+5x}$ oe or $=1-\frac{5}{x+5}+\frac{5}{x}$	M1
	$=1+\frac{25}{x^2+5x}$ or as $x^2+5x+25>x^2+5x$ $\mathrm{P}(C)+\mathrm{P}(D)>1$ or As $x+5>x$ then $\frac{5}{x+5}<\frac{5}{x}\Rightarrow-\frac{5}{x+5}+\frac{5}{x}>0$ So $\mathrm{P}(C)+\mathrm{P}(D)>1$	A1
	$\mathrm{P}(C\cup D)>1$ or $\mathrm{P}(C\cap D)>0$	A1 cso
		(4)
	Notes	**Total 13**