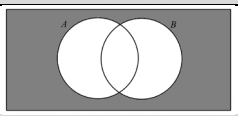
Question Number	Scheme	Marks
6 (a)		B1
		(1)
(b)(i)	$[\mathrm{P}(C) =] \; x + 0.2$	B1
(ii)	$\left[\mathrm{P}(D \mid C) =\right] \; \dfrac{0.2}{x + 0.2}$	B1
		(2)
(c)	$\left[\mathrm{P}\left(C \cup D\right) =\right] \; x + y + 0.2$	B1
		(1)
(d)	$x + y + 0.44 = 1$ oe or $x + y + 0.2 = 0.76$ oe	M1
	$x + 0.2 = 3\left(y + 0.2\right)$ **or** $x + y + 0.2 = 0.6 + 4y \; \left[\Rightarrow x - 3y = 0.4\right]$	M1
	$y = 0.04$ and $x = 0.52$	A1A1
		(4)
(e)	$\mathrm{P}(C) = 0.72, \mathrm{P}(D) = 0.24, \mathrm{P}(C \cap D) = 0.2$ or $\mathrm{P}(C) = 0.72, \mathrm{P}(C \mid D) = 0.8333...$ or $\mathrm{P}(D) = 0.24, \mathrm{P}(D \mid C) = 0.2777...$	M1
	$\mathrm{P}(C) \times \mathrm{P}(D) \neq \mathrm{P}(C \cap D)$ or $\mathrm{P}(C \mid D) \neq \mathrm{P}(C)$ or $\mathrm{P}(D \mid C) \neq \mathrm{P}(D)$ So not independent	A1
		(2)

	Notes		Total 10
(a)	**B1**	for a correct shading – needs some indication of sections shaded / unshaded	
(b)(i)	**B1**	cao isw following a correct expression seen	
(ii)	**B1**	cao isw following a correct expression seen	
(c)	**B1**	cao Condone if they equate their expression to 0.76 only May be seen in (d) but must be an expression which is clearly labelled and not just embedded within an equation.	
(d)	**M1**	for either $x + y + 0.44 = 1$ oe or $x + y + 0.2 = 0.76$ oe May have already substituted in $x + 0.2 = 3\left(y + 0.2\right)$ e.g. $3y + 0.6 + y + 0.24 = 1$ which scores M1M1 Also allow if they state or find probabilities for x and y where $x + y = 0.56$ oe Note if the equations are seen elsewhere they must be used in this part to score.	
	M1	for $x + 0.2 = 3\left(y + 0.2\right)$ oe or $x + y + 0.2 = 0.6 + 4y$ oe may be seen within an equation	
	A1	for either $y = 0.04$ oe **or** $x = 0.52$ oe	
	A1	for both $y = 0.04$ oe **and** $x = 0.52$ oe	
	Note	**Beware of e.g.** $3(x + 0.2) = y + 0.2 \Rightarrow x = 0.04, \; y = 0.52$ **which scores M1M0A0A0**	
(e)	**M1**	for labelling all of the probabilities needed for a test of independence (probabilities must be correct or correct ft on their probabilities for x and y) Allow e.g. $0.2 + '0.52'$ as a probability. Must use C and D. The probabilities may be seen in a calculation which matches their stated test. Either P(C) , P(D) and $\mathrm{P}(C \cap D)$ or P($D \mid C$) and P(D) or P($C \mid D$) and P(C) (must all be probs)	
	A1	for stating the correct test with the correct probabilities $\mathrm{P}(C) \times \mathrm{P}(D) \neq \mathrm{P}(C \cap D)$	