Question	Scheme		Marks
6(a)	0.16 oe		B1
			(1)
(b)	**Mark parts (b) and (c) together** **If values are given in the diagram and the script, then the script takes precedence**		
	$[\mathrm{P}(C)=]0.04+0.15+0.12+p[=0.31+p]$ $[\mathrm{P}(S)=]0.1+0.15+0.12+0.23[=0.6]$ $[\mathrm{P}(S\cap C)=]0.15+0.12[=0.27]$	$[\mathrm{P}(C')=]0.1+0.23+q[=0.33+q]$ $[\mathrm{P}(S')=]1-(0.12+0.15+0.1+0.23)[=0.4]$ $[\mathrm{P}(S'\cap C')=]q$	M1M1
	$("0.31"+p)\times"0.6"="0.27"$ oe	$("0.33"+q)\times"0.4"=q$ oe	M1d
	$p=0.14$ oe	$q=0.22$ oe	A1
			(4)
(c)	$q=1-(0.04+0.12+0.15+0.1+0.23+"p")$	$p=1-(0.04+0.12+0.15+0.1+0.23+"q")$	M1
	$q=0.22$ oe	$p=0.14$ oe	A1ft
			(2)
(d)(i)	$[\mathrm{P}((C\cup S)\cap G')]=0.39$ oe		B1
			(1)
(ii)	$\mathrm{P}(C\mid(S\cap G))=\dfrac{0.15}{0.15+0.1}$		M1
	= 0.6 oe		A1
			(2)
(e)	Number of teenagers $=\dfrac{76}{0.15+"p"}$ oe		M1
	Number who don't play Scrabble $="\left(\dfrac{76}{0.15+p}\right)"\times 0.4$ $(=104.8...)$		M1
	= 104.8… awrt 105		A1
			(3)

	Notes		Total 13
(a)	**B1**	correct probability	
(b)	**M1**	for 2 correct probability expressions	
	M1	all 3 correct probability expressions Allow P(C) = 0.45	
	M1d	dependent on the 1st M1 being awarded for use of $\mathrm{P}(C\cap S)=\mathrm{P}(C)\times\mathrm{P}(S)$ oe or $\mathrm{P}(C'\cap S')=\mathrm{P}(C')\times\mathrm{P}(S')$ ft their probabilities if labelled clearly	
	A1	for 0.14 or exact equivalent or 0.22 or exact equivalent	
(c)	**M1**	for a correct expression for q ft their value of p or a correct expression for p ft their value of q May be implied by a correct value for q ft their p or a correct value for p ft their q	
	A1ft	for 0.22 or exact equivalent ft their value of p or 0.14 or exact equivalent ft their value of q ($p + q = 0.36$ provided p and q are probabilities)	
(d)(i)	**B1**	for 0.39 or exact equivalent do not allow 0.04 + 0.12 + 0.23	
(ii)	**M1**	for $\dfrac{0.15}{0.15+0.1}$	
	A1	for 0.6 or exact equivalent	
(e)	**M1**	Relating 76 to their $\mathrm{P}(C\cap G)$ May be implied by awrt 262	
	M1	for number of teenagers × 0.4 ft their number of teenagers e.g. 0.4 × "262" provided that the number of teenagers is not 76	
	A1	awrt 105 ISW	

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