Question Number	Scheme	Marks
2. (a)	B and C	B1 (1)
(b)	A and C independent gives:	
	$\text{P}(C)\times 0.65 = 0.13$ **or** $0.65\times(r+0.13)=0.13$ **or** $0.65\times(0.48-s)=0.13$	M1
	$\text{P}(C)=0.2$ **or** $r+0.13=0.2$ **or** $0.48-s=0.2$	A1
	r {$= 0.2 - 0.13$} = **0.07** **or** s {$= 0.48 - 0.2$} = **0.28**	A1
	$\text{P}(A)+r+s=1$ **or** $0.65 + \text{"0.07"} + s = 1$ **or** $0.65 + \text{"0.28"} + r = 1$	M1
	s {$= 1 - 0.72$ =} **0.28** **and** r {$= 1 - 0.93$ =} **0.07**	A1 (5)
(c)	$\text{P}[(B\cup C)] = \text{"0.2"} + q$ **or** $0.13 + \text{"0.07"} + q$	B1ft
	$\text{P}(A\cap C') = p+q \quad \{=0.52\}$	B1
	$\{\text{P}[(A\cap C')\cap(B\cup C)]=q\Rightarrow\} \quad \text{"}(p+q)\text{"}\times\text{"}(0.2+q)\text{"}=q$ **or** $\text{"}(p+q)\text{"}\times\text{"}(0.13+\text{"0.07"}+q)\text{"}=q$ or $\text{"}(p+q)\text{"}\times\text{"}(1-s-p)\text{"}=0.52-p$	M1
	[Using $p+q=0.52$] $0.52\times\text{"}(0.2+q)\text{"}=q$ or $0.52(0.72-p)=0.52-p$	M1
	$q=\frac{13}{60}$	A1
	$p=\frac{91}{300}$	A1 (6)
	Notes	**[12 marks]**
(a)	B1 B and C seen. If they include A then B0	
(b)	1st M1 for a correct equation for P(C) using independence.	
	1st A1 for P(C) = 0.2 correct linear equation for r or s	
	2nd A1 for either $r = 0.07$ or $s = 0.28$	
	2nd M1 for using $\sum p = 1$ Allow letter r and s or their values for r and s provided they are probabilities.	
	3rd A1 for both $s = 0.28$ and $r = 0.07$	
	NB: The quotations around the 0.07 ("0.07") imply that we ft their value	
(c)	1st B1ft for an expression (in q) for $\text{P}(B\cup C)$ ft their value of r or their "0.2" eg 0.13 + "their r" + q Implied by 1st or 2nd M1 below.	
	2nd B1 for a correct expression for $\text{P}(A\cap C')$ in terms of p and q or 0.52 Implied by 1st or 2nd M1below	
	1st M1 for a correct use of independence (ft their probabilities), values or letters. Implied by 2nd M1	
	2nd M1 using $p + q = 0.52$ to gain a linear equation in one variable	
	1st A1 for a correct fraction for q	
	2nd A1 for a correct fraction for p	
	SC: If both p and q are given as equivalent recurring decimals award A0A1 eg $0.2\dot{1}6$ and $0.30\dot{3}$	

