

Qu 1	Scheme	Marks	AO
(a)	A, C <u>or</u> D, B <u>or</u> D, C	B1 (1)	1.2
(b)	$[p = 0.4 - 0.07 - 0.24 =]$ <u>0.09</u>	B1 (1)	1.1b
(c)	A and B independent implies $P(A) \times 0.4 = 0.24$ <u>or</u> $(q + 0.16 + 0.24) \times 0.4 = 0.24$ so $P(A) = 0.6$ and $q =$ <u>0.20</u>	M1 A1cso (2)	1.1b 1.1b
(d)(i)	$P(B' C) = 0.64$ gives $\frac{r}{r + p} = 0.64$ <u>or</u> $\frac{r}{r + "0.09"} = 0.64$ $r = 0.64r + 0.64 "p"$ so $0.36r = 0.0576$ so $r =$ <u>0.16</u>	M1 A1	3.1a 1.1b
(ii)	Using sum of probabilities = 1 e.g. “0.6” + 0.07 + “0.25” + $s = 1$ so $s =$ <u>0.08</u>	M1 A1 (4)	1.1b 1.1b
		(8 marks)	
Notes			
(a)	B1 for one correct pair. If more than one pair they must all be correct. Condone in a correct probability statement such as $P(A \cap C) = 0$ or correct use of set notation e.g. $A \cap C = \emptyset$ BUT e.g. “ $P(A)$ and $P(C)$ are mutually exclusive” alone is B0		
(b)	B1 for $p = 0.09$ (Maybe stated in Venn Diagram [VD]) [If values in VD and text conflict, take text or a value <u>used</u> in a later part]		
(c)	M1 for a correct equation in one variable for $P(A)$ or q using independence <u>or</u> for seeing both $P(A \cap B) = P(A) \times P(B)$ <u>and</u> $0.24 = 0.6 \times 0.4$ A1cso for $q = 0.20$ or exact equivalent (dep on correct use of independence) Use of $P(A) = 1 - P(B) = 0.6$ leading to $q = 0.2$ scores M0A0		
Beware			
(d)(i)	1 st M1 for use of $P(B' C) = 0.64$ leading to a correct equation in r and possibly p . Can fit their p provided $0 < p < 1$ 1 st A1 for $r = 0.16$ or exact equivalent		
(ii)	2 nd M1 for use of total probability = 1 to form a linear equation in s . Allow p, q, r etc Can follow through their values provided each of p, q, r are in $[0, 1)$ 2 nd A1 for $s = 0.08$ or exact equivalent		