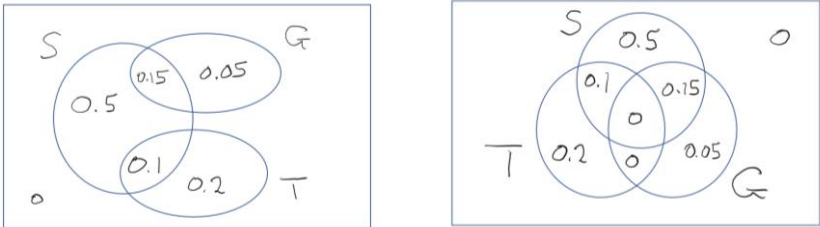


Question	Scheme	Marks	AOs
4(a)	A survey of all of the members of the club	B1	1.1b
		(1)	
(b)	Use of $P(S \text{ and } G) = P(S) \times P(G) = \frac{3}{4} \times \frac{1}{5}$	M1	2.1
	$P(S \text{ and } G) = \frac{3}{20} = 0.15^*$	A1*cso	1.1b
(c)(i)	$P(S \text{ and } T' \text{ and } G') = 1 - P(T) - P(G) = 1 - \frac{3}{10} - \frac{1}{5}$	M1	3.1b
	$= \frac{1}{2}$	A1	2.2a
(ii)		(2)	
	Structure, Venn diagram with 3 circles and 0 probability for none of S , T and G $P(S \text{ and } T \text{ and } G) = 0$ and $P(T \text{ and } G) = 0$ Shown by 0s on Venn Diagram or G and T circles not intersecting $P(S' \text{ and } G) = \frac{1}{5} - \frac{3}{20} = \frac{1}{20}$ $P(S \text{ and } T) = \frac{3}{4} - \frac{1}{2} - \frac{3}{20} = \frac{1}{10}$ $P(S' \text{ and } T) = \frac{3}{10} - \frac{1}{10} = \frac{1}{5}$ e.g. <div>  </div>	B1	2.2a
		B1	1.1b
		B1ft	2.1
		B1ft	1.1b
	or		
		(4)	

(9 marks)

Notes:
(a) B1: Must make reference to club members and indicate whole population used.
(b) M1: Use of formula for independent events A1: 0.15 oe cso*

(c)(i)

M1: correct expression

A1: $\frac{1}{2}$

(c)(ii)

1st B1: correct Venn diagram structure and zeros

2nd B1: cao

3rd B1ft: ft their 0.5 must be answer in range $0 < p < 0.3$

4th B1ft: ft their 0.1 must be answer in range $0 < p < 0.3$