

Sets & Venn Diagrams

Mark Scheme 3

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Number
Sub-Topic	Sets & Venn Diagrams
Booklet	Mark Scheme 3

Time Allowed: 57 minutes

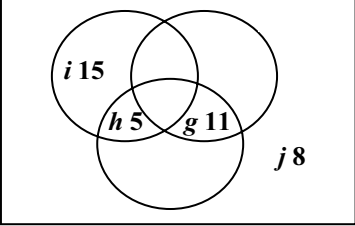
Score: /47

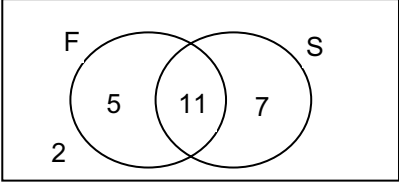
Percentage: /100

Grade Boundaries:

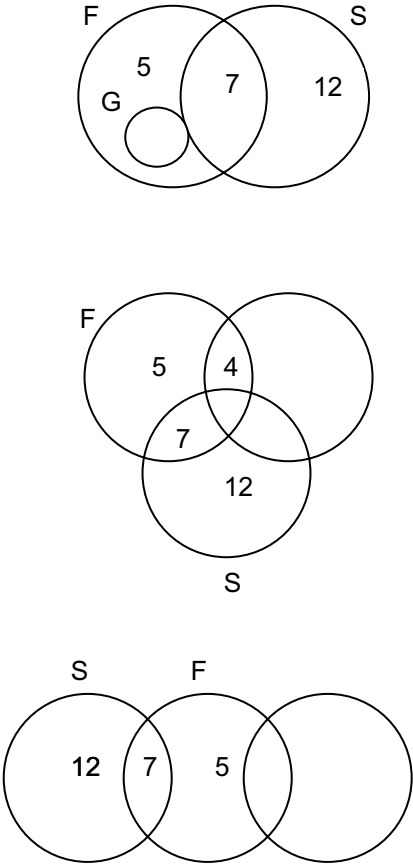
A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%



1	<p>(a)</p>  <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 10px;"> <p>$(g =)11$ $(h =) 5$ $(i =)15$ $(j =) 8$</p> </div> <p>(b) (i) 5 (ii) 51</p> <p>(c) (i) 15 (ii) 10</p> <p>(d) (i) $\frac{13}{90}$ oe [0.144] (ii) $\frac{15}{90}$ oe [0.167]</p>	<p>1 1ft ft 16 – their 11 1ft ft 20 – their 5 1ft ft 39 – (their 11 + their 5 + their 15) ft for positive integers only</p> <p>1 1 ft ft 36 + their <i>i</i></p> <p>1 1 1 In (d) and (e) accept fraction, %, dec equivalents (3sf or better) throughout but not ratio or words isw incorrect cancelling/conversion</p> <p>1</p>
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2	<p>(a) (i)</p>  <p>(ii) 9 (iii) 14 (iv) $\frac{11}{25}$ (v) $\frac{42}{600}$ oe = $\frac{7}{100}$</p>	<p>2 B1 for 2 outside of circles in diagram or all three of 5, 11, 7 correctly placed</p> <p>1ft ft <i>their 2 + their 7</i></p> <p>1</p> <p>1ft ft <i>their 11</i> from diagram / 25</p> <p>2ft isw incorrect cancelling ft <i>their 7</i> from diagram for numerator M1 for $\frac{\text{their}7}{25} \times \frac{\text{their}(7-1)}{24}$ scored, SC1 for $\frac{\text{their}7}{25} \times \frac{\text{their}(7)}{25}$</p>
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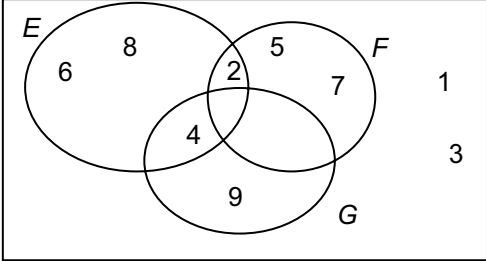


<p>2</p>	<p>(b)</p>  <p>(ii) 28</p>	<p>4</p> <p>1ft</p>	<p>B1 for any correct diagram with blanks or zeros where needed and labelled unambiguously B1 for 4 in correct place B1 for 12 in correct place B1 for 5 and 7 in correct place</p> <p>Correct or fit from <i>their</i> diagram</p>
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<p>3</p>	<p>(a) (i) $\frac{2}{20}$ oe</p> <p>(ii) $\frac{6}{20}$ oe</p> <p>(iii) $\frac{14}{20}$ oe</p> <p>(b) (i) 7</p> <p>(ii) 42</p> <p>(iii) $\frac{7}{50}$</p> <p>(iv) $\frac{7}{9}$ [0.777[7].. or 0.778]</p>	<p>2</p> <p>3</p> <p>1ft</p> <p>1</p> <p>1</p> <p>1ft</p> <p>1ft</p>	<p>Accept fraction, %, dec equivalents [3sf or better] throughout but not in ratio or words Isw incorrect cancelling or converting and do not accept ratios or words Pen -1 once for 2sf answers ft probability if $0 < p < 1$</p> <p>M1 for $\frac{2}{5} \times \frac{1}{4}$ oe</p> <p>M2 for $2 \times \frac{1}{5} \times \frac{1}{4} + 2 \times \frac{2}{5} \times \frac{1}{4}$ oe M1 for pairs 1, 4 and 2, 3 clearly identified and no other incorrect pairings or for one appropriate product isw</p> <p>ft 1 – <i>their</i> (a)(ii) or recovery to correct ans</p> <p>ft <i>their</i> 7/50 from Venn diagram or correct recovery</p> <p>ft <i>their</i> 7/<i>their</i> 9 from Venn diagram or correct recovery</p>
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4 (a)	2 4 6 8	1	
(b)	3	1	
(c) (i)	$(x-4)(x-9)$	2	SC1 any other $(x+a)(x+b)$ where $a \times b = 36$ or $a + b = -13$
(ii)	4 9	B1 ft	ft or can recover
(d)		2	Must have all 9 numbers on diagram and no extras SC1 for 5 or more correct elements
(e) (i)	\emptyset or $\{ \}$ cao	1	
(ii)	\notin cao	1	
(iii)	\cup cao	1	

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