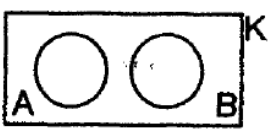
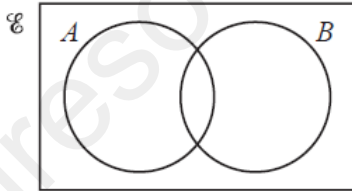
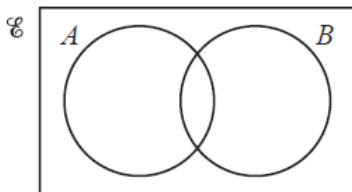
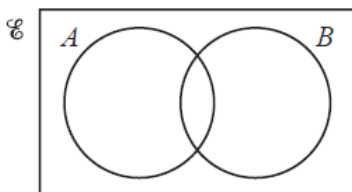

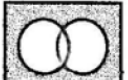



SET THEORY-2

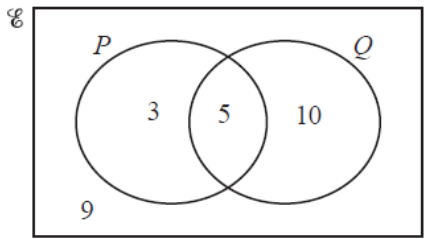
1	<p>Three sets A, B and K are such that $A \subset K, B \subset K$ and $A \cap B = \emptyset$. Draw a Venn diagram to show this information.</p>		[2]
MS-1		2	<p>B1 for A,B disjoint B1 for A,B subsets of K</p>
2	<p>(a) Shade the region $A \cap B$.</p> <div style="text-align: center;">  </div>		[1]
	<p>(b) Shade the region $(A \cup B)'$.</p> <div style="text-align: center;">  </div>		[1]
	<p>(c) Shade the complement of set B.</p> <div style="text-align: center;">  </div>		[1]

MS-2	<p>(a) </p> <p>(b) </p> <p>(c) </p>	1 1 1	Intersection shaded Ensure that the intersection is NOT shaded
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3	<p>A and B are sets. Write the following sets in their simplest form.</p> <p>(a) $A \cap A'$.</p> <p style="text-align: right;"><i>Answer(a)</i> [1]</p> <p>(b) $A \cup A'$.</p> <p style="text-align: right;"><i>Answer(b)</i> [1]</p> <p>(c) $(A \cap B) \cup (A \cap B')$.</p> <p style="text-align: right;"><i>Answer(c)</i> [1]</p>
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MS-3	<p>(a) \emptyset</p> <p>(b) ξ</p> <p>(c) A</p>	1 1 1	No brackets allowed. Not ϵ or e No brackets allowed
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4



The Venn diagram shows the number of elements in each set.

(a) Find $n(P' \cap Q)$.

Answer(a) [1]

(b) Complete the statement $n(\dots\dots\dots) = 17$.

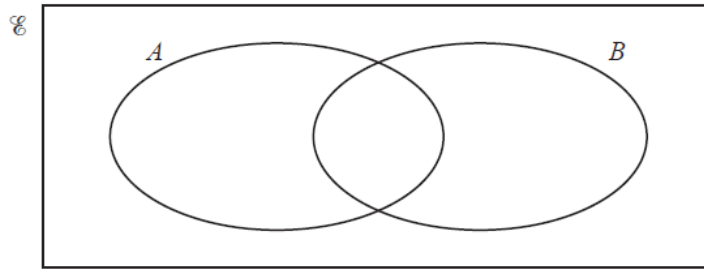
[1]

MS-4

(a)	10	1
(b)	$P \cup Q'$ oe	1

5

(a) $n(\mathcal{E}) = 10$, $n(A) = 7$, $n(B) = 6$, $n(A \cup B)' = 1$.



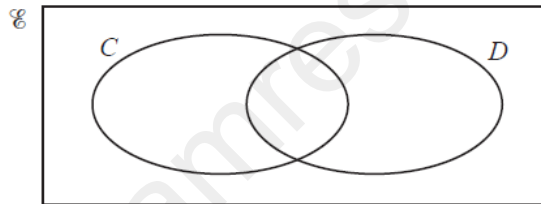
(i) Complete the Venn diagram by writing the number of elements in each subset. [2]

(ii) An element of \mathcal{E} is chosen at random.

Find the probability that this element is an element of $A' \cap B$.

..... [1]

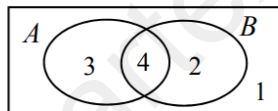
(b) On the Venn diagram below, shade the region $C' \cap D'$.



[1]

MS-5

(a) (i)



2

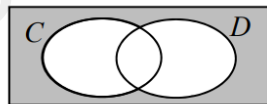
B1 for $n(A \cap B) = 4$

(ii) $\frac{2}{10}$ oe

1FT

allow correct answer or **FT** $\frac{\text{their } 2}{10}$

(b)



1

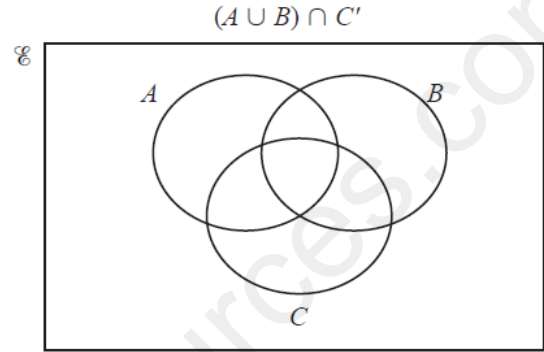
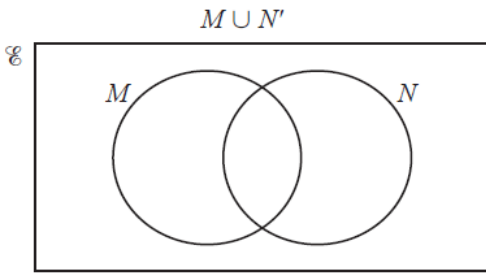
6

(a) $Q = \{1, 2, 3, 4, 5, 6\}$

Write down a set P where $P \subset Q$.

$P = \dots\dots\dots$ [1]

(b) Shade these regions in the Venn diagrams.



[2]

MS-6

(a)	Fewer than 6 elements from $\{1, 2, 3, 4, 5, 6\}$ or \emptyset	1	
(b)		1	
		1	