

MODUL 5B
MATEMATIK SPM "ENRICHMENT"
TOPIC : SETS
MASA : 1 JAM

1. The Venn diagram in the answer space shows the universal set ξ , sets P , Q and R .

The universal set $\xi = P \cup Q \cup R$.

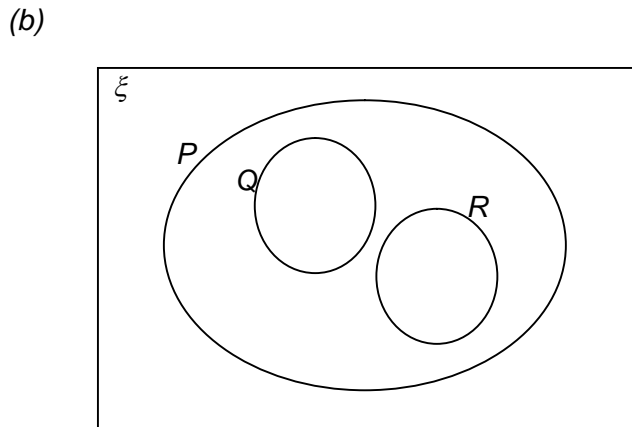
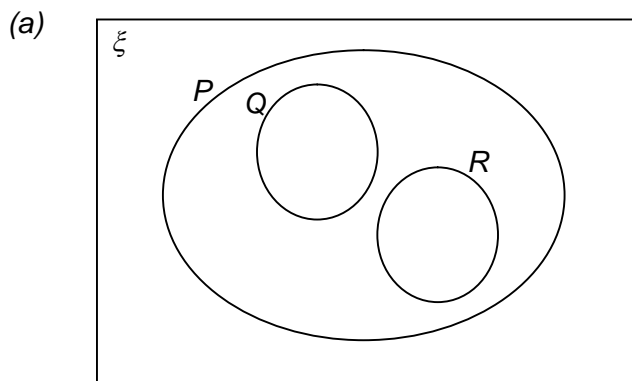
On the diagram in the answer space, shade the region for

(a) $P \cap Q$,

(b) $P \cap (Q \cup R)'$.

[3 marks]

Answer:

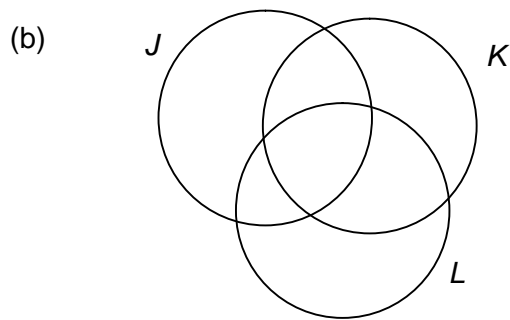
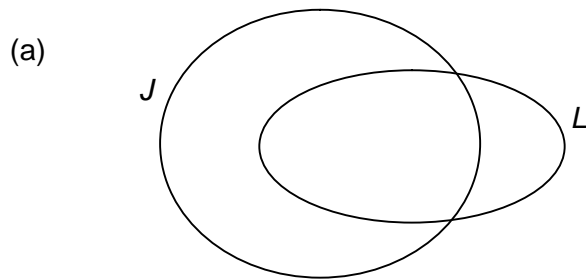


2. The Venn diagram in the answer space shows sets J, K and L .
In the answer space, shade

- (a) $J \cap L'$
- (b) $(K \cup L) \cap J'$

[3 marks]

Answer:



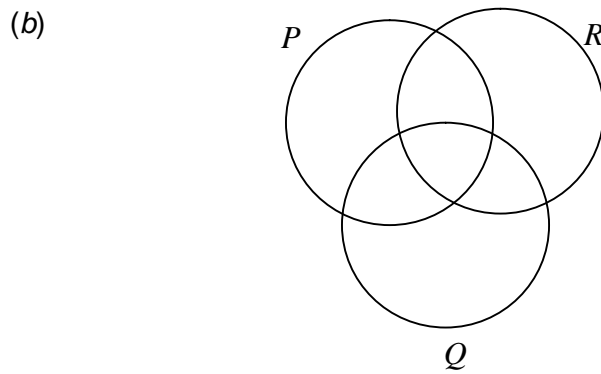
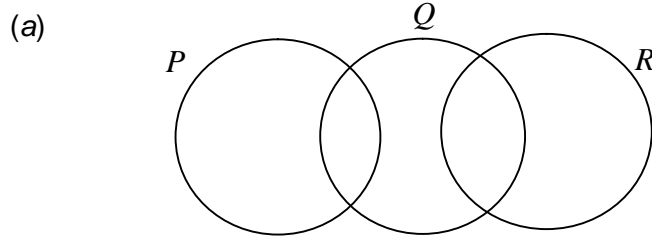
- 3 The Venn diagram in the answer space shows set P , set Q and set R with the universal set $\xi = P \cup Q \cup R$.

On the diagram in the answer space, shade

- (a) $P \cup Q \cap R$
(b) $P \cap (Q \cup R)'$

[3 marks]

Answer:



4. Diagram 4 shows an incomplete Venn diagram that represents the number of students from a class of 30, according to the subjects they have studied. Each student studied at least one of the three subjects Physics, Chemistry and Biology.

Given the universal set, $\xi = P \cup C \cup B$,

$P = \{\text{students who studied Physics}\}$

$C = \{\text{students who studied Chemistry}\}$

$B = \{\text{students who studied Biology}\}$

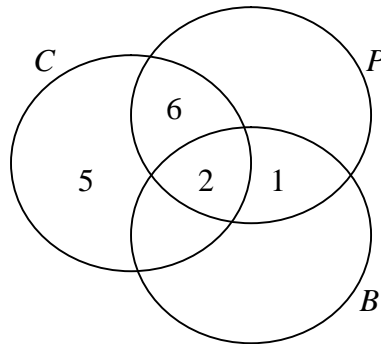


DIAGRAM 4

20 students studied Chemistry and 12 students studied Biology. Based on this information, find

- the number of students who studied Chemistry and Biology but not Physics.
- the number of students who studied Biology only.
- the number of students who studied Physics.

[4 marks]

Answer:

(a)

(b)

(c)

5. (a) Given that $\xi = \{x: x \text{ is an integer and } 7 \leq x \leq 15\}$,
 $A = \{x: x \text{ is a multiple of } 3\}$,
 $B = \{x: x \text{ is an odd number}\}$ and
 $C = \{x: 10 \leq x \leq 13\}$.

- (a). List the elements of the set C' .
(b). Find $n(A \cup B)$.

[3 marks]

6. Given that $n(\xi) = 50$. G and H are two sets for which $n(G \cap H) = 6$,
 $n(G) = 18$ and $n(H) = 14$.

- (a). Draw a Venn diagram to represent the relationship between sets G
and H and write the number of elements in each region.
(b). Find $n(G \cup H)$.

[3 marks]

Answer:

- (a)
(b)

7. If $\xi = \{x : 1 \leq x \leq 10, x \text{ is an integer}\}$

$E = \{x : x \text{ is a multiple of } 4\}$

$F = \{x : x \text{ is a factor of } 20\}$

- (a) List all the elements in set E ,
- (b) Find $n(E \cup F)$.
[3 marks]

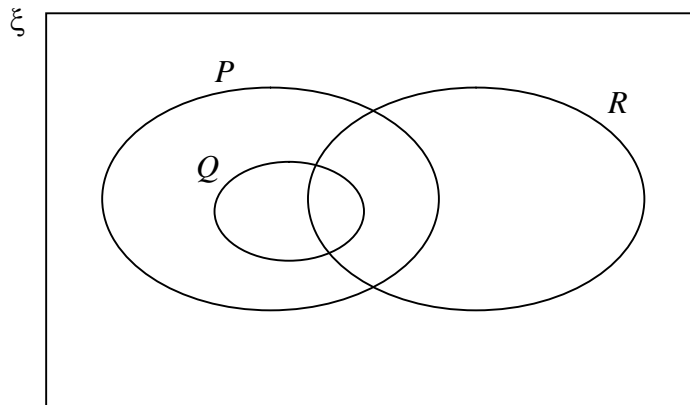
8. The Venn diagram in the answer space shows set P , set Q dan set R . On the diagram, shade

- (a) $P \cap Q'$
- (b) $R \cap (P' \cup Q)$

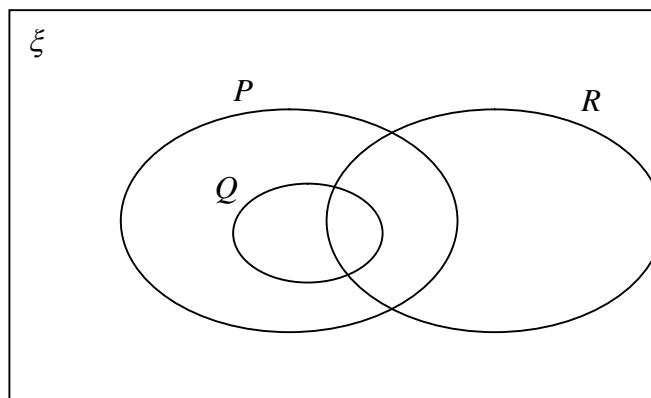
[3 marks]

Answer :

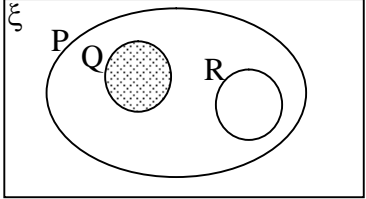
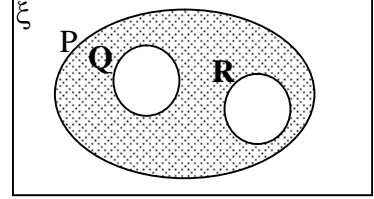
(a)

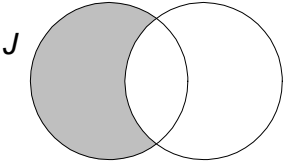
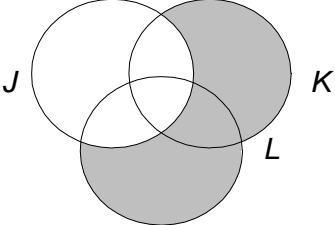


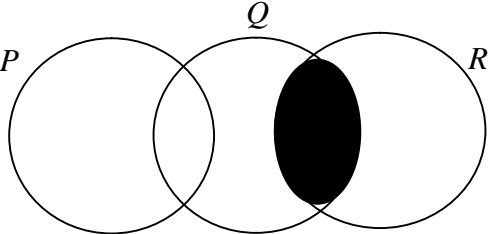
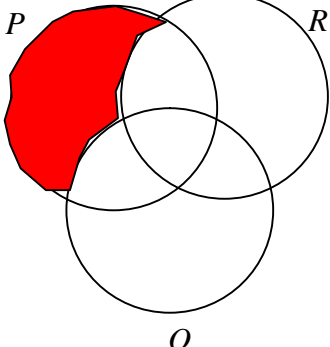
(b)



MODULE 5 – ANSWERS
TOPIC: SETS

<p>1 (a)</p>		<p>1</p>
<p>(b)</p>		<p>2</p>

<p>2 (a)</p>	<p>$J \cap L'$</p> 	<p>1</p>	
<p>(b)</p>	<p>$(K \cup L) \cap J'$</p> 	<p>2</p>	<p>3</p>

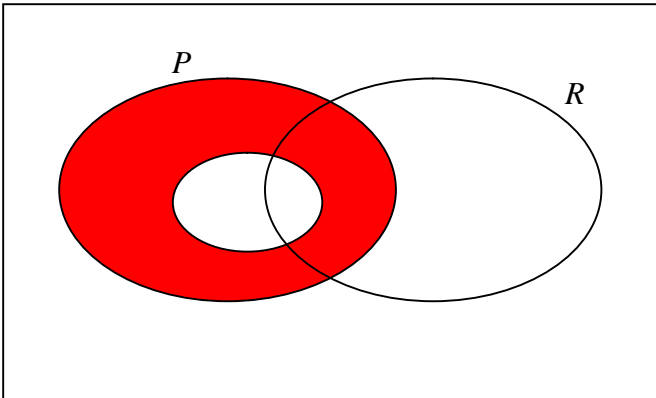
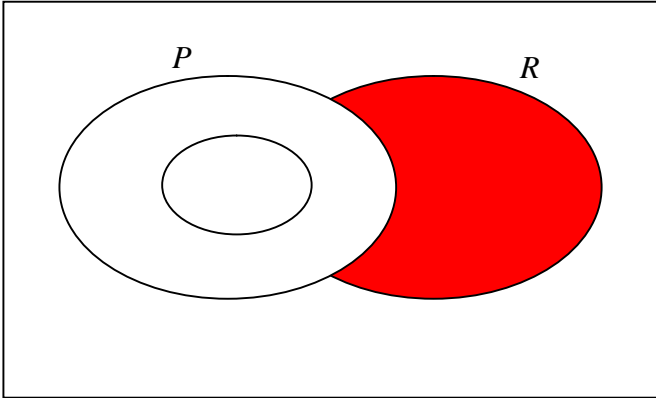
<p>3 (a)</p>		<p>1</p>	
<p>(b)</p>		<p>2</p>	<p>3</p>

4			
(a)	5	1	
(b)	$30 - (5 + 6 + 2 + 1)$ 16	1 1	
(c)	9	1	4

5			
(a)	{10,11,12,13}	1	
(b)	$A = \{9,12,15\}$ $B = \{7,9,11,13,15\}$ $A \cup B = \{7,9,11,12,13,15\}$ $N(A \cup B) = 6$	1 1	3

6			
(a)		2	
(b)	24	1	3

7			
(a)	{ 4 , 8 }	1	
	<u>Note:</u> Accept without bracket.		
(b)	6	2	3

8	<p>\cup</p>  	1 2	3
---	---	--------	---