

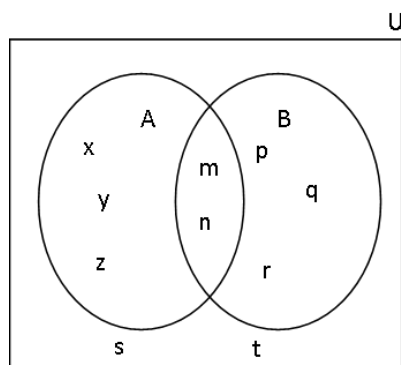
Chapter: 1

Q.1 Solve the following (Any Four)

4

- 1 Observe the given Venn diagram and write the following sets.

$(A \cup B)'$

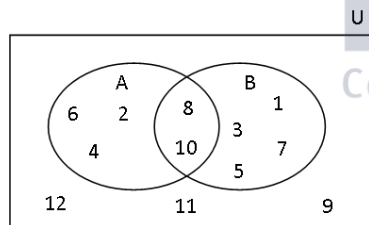


- 2 Represent the union of two sets by Venn diagram for each of the following.

$P = \{a, b, c, e, f\}$ $Q = \{l, m, n, e, b\}$

- 3 Observe the Venn diagram and write the following sets using listing method.

$A \cup B$



- 4 Write the following sets using listing method.

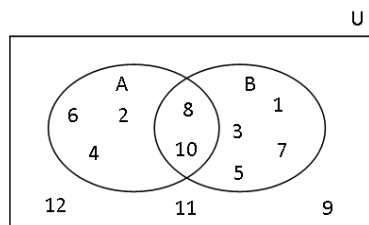
Letters in the word 'COMPLEMENT'

- 5 Write with reasons, which of the following sets are finite or infinite.

Set of apparatus in laboratory

- 6 Observe the Venn diagram and write the following sets using listing method.

A



Q.2 Attempt the following (activity)(Any Two)

4

- 1 $A = \{1, 3, 2, 7\}$ then write any four subsets of A.

solution: Four subsets of A:

i. $B = \{ \quad \}$

ii. $C = \{ \quad \}$

iii. $D = \{ \quad \}$

iv. $E = \{ \quad \}$

- 2 If $n(A) = 7$, $n(B) = 13$, $n(A \cap B) = 4$, then $n(A \cup B) = ?$

$$\begin{aligned} n(A \cup B) &= \underline{\hspace{2cm}} + n(B) - \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

- 3 Let all the students of a class in a Universal set and A be the students who secure 50% or more marks in Maths. Then write the complement of set A .

Solution:

$$U = \underline{\hspace{2cm}}$$

$$A = \underline{\hspace{2cm}}$$

$$A' = \underline{\hspace{2cm}}$$

Q.3 Answer the following (Any One)

- 1 Classify the following sets as 'singleton' or 'empty'

i. $A = \{x | x \text{ is a negative natural number}\}$

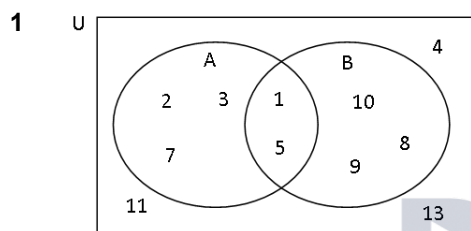
ii. $B = \{y | y \text{ is an odd prime number } y < 4\}$

- 2 $U = \{1, 2, 3, 7, 8, 9, 10, 11, 12\}$

$$P = \{1, 3, 7, 10\}$$

then, show the sets U , P and P' by Venn diagram.

Q.4 Attempt the following. (activity)(Any Two)



Observe the Venn diagram and write the given sets U , A , B , $A \cup B$ and $A \cap B$.

$$\text{Sets } U = \underline{\hspace{2cm}}$$

$$A = \underline{\hspace{2cm}}$$

$$B = \underline{\hspace{2cm}}$$

$$A \cup B = \underline{\hspace{2cm}}$$

$$A \cap B = \underline{\hspace{2cm}}$$

- 2 In a competitive exam 50 students passed in English. 60 students passed in Mathematics. 40 students passed in both the subjects. None of them fail in both the subjects. Find the number of students who passed at least in one of the subjects?

Let A be the set of students who passed in English = $n(A) = 50$

and B be the set of students who passed in Mathematics = $n(B) = 60$

Total number of students who passed in both Subject = $\underline{\hspace{2cm}} = 40$

Total Number of students who passed at least in one of the subjects = $\underline{\hspace{2cm}}$

we know,

$$n(A \cup B) = \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

$$= 110 - 40$$

$$= \underline{\hspace{2cm}}$$

Number of students who passed at least in one of the subjects = $\underline{\hspace{2cm}}$

- 3 110 children choose their favourite colour from blue and pink. Every student has to choose at least one of the colour. 60 children choose blue colour, while 70 children choose pink colour. How many children choose both the colours as their favourite colour?

Let the number of children who choose blue colour be $n(B)$ and number of children who choose pink colour be $n(P)$.

$$\therefore n(B) = \underline{\hspace{2cm}} \text{ and } n(P) = \underline{\hspace{2cm}}$$

$$\therefore \text{ number of children who choose their favourite colour from blue of pink.}$$

$\therefore n(B \cup P) = 110$

By using the identity,

$n(B \cup P) = \underline{\hspace{2cm}}$

$\therefore \underline{\hspace{2cm}}$

$\therefore \underline{\hspace{2cm}}$

$\therefore n(B \cap P) = \underline{\hspace{2cm}}$

\therefore The number of students who choose both the colours as their favourite colours is $\underline{\hspace{2cm}}$

Q.5 Solve the following

4

- 1** In a class of 70 students, 45 students like to play Cricket. 52 students like to play Kho- Kho. All the students like to play atleast one of the two games. How many students like to play Cricket or Kho - Kho?

