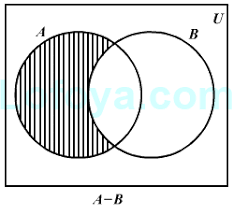
**1/2 mark and 1mark questions**

1. If A = {x: x € N and x < 20} and B = {x: x € N and x ≤ 5} then write the set A – B in the set builder form
2. “B is a set of all months in a year having 30 days”. Write the above set in the roster form.
3. If A – B = {3,4,5}, B – A = {1,8,9} and A ∩ B = { 6,7} then find A U B.
4. If A = then write A in set builder form.
5. A = {x: x € N, x is a composite number and x < 13}. Write set A in the roster form.
6. Represent A ∩ B through Venn diagram where A = {1,4,6,9,10} and B = {Perfect square number less than 25}
7. Fill the following table.

|  |  |  |
| --- | --- | --- |
|  | A U B | A ∩ B |
| A is subset to B | ? | ? |
| A and B are disjoint sets | ? | ? |

1. If A = {1,2,3,4,5} and B = {3,4,5,6} then find A ∩ B?
2. Give an example for each finite set and infinite set?
3. List all subsets of the set A = {x, y, z}
4. If A = {x: x is a factor of 24}, then find n(A).
5. If A = {1,3,5} then find A ∩∅ and ∅ ∩ A.
6. If n(A) = 12 and n (A ∩ B) = 5, then find n (A – B)?
7. A = {x: x is a letter in word MATHEMATICS}. Write the roster form of A?
8. If n(A) = 8, n(B) = 3 and n(A ∩ B) = 2 then find n(A U B)?
9.  The shaded reason represents \_\_\_\_\_
10. Draw the Venn diagram of A ∩ B?
11. Write set builder form of A – B?
12. A ⊂ B, n(A) = 5 and n(B) = 7. Find n (A U B).
13. If n (A U B) = n(A) + n(B), then what is the relation between the sets A and B?
14. Give an example to null set in set builder form?
15. If A ⊂ B then match the following

Group P Group Q

1. A U B ( ) P) B

2. A ∩ B ( ) Q) A

3. A – B ( ) R) ∅

A) 1-P, 2-Q, 3-R B) 1-Q, 2-R, 3-P C) 1-Q, 2-P, 3-R D) 1-R, 2-P, 3-Q

1. Statement A: Null set is subset to any set.

Statement B: Any set is subset to universal set.

A) both are true B) both are false

C) only statement A is true D) only statement B is true

1. Given n(A) = 5 and n(B) = 7 then how many maximum numbers of elements are there in A ∩ B?
2. Which of the following non empty sets are always disjoint sets?

A) A U B, A ∩ B B) A U B, A – B C) A ∩ B, B ∩ A D) A – B, B – A

1. A = {a, b, c, d}. How many subsets does A have?
2. State reason: {1,2,3, ……. 10} ≠ {x/x € N and 1 < x < 10}.
3. Given A is a non-empty set and A U B = A then write the possible sets for B which satisfies the condition.
4. Draw the Venn diagram of the sets A and B where A ⊂ B
5. If A and B are disjoint sets and n(A) = 4 and n(B) = 3 then how many maximum number elements are there in A ∩ B.
6. Which set have only one subset?
7. (A – B) U (A ∩ B) U (B – A) = ?

**Two marks questions**

1. If A = {x: x € N and x < 6} and B = {x: x € N and 3 < x < 8}, then show that A – B ≠ B – A with the help of Venn diagram?
2. Answer the following questions and justify your answer.

A) A = {x: x € N and x < 2020}. Is it finite set or infinite set?

B) B = {x: x € N and x + 5 = 5}. Is it null set or universal set?

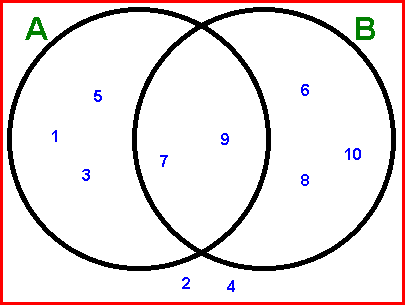
1. A = {x: x € N and x is a factor of 30}, B = {x: x is a prime factor of 30}. Draw Venn diagram for A U B?
2. If A = {x: x € N, x < 10}, B = {x: x is a prime number and x < 10}. Then find A – B and B – A? What can you conclude?
3. If universal set U = {0,1,2,3,4,5,6,7,8,9,10}, A = {2,3,5,8} and B = {0,3,5,7,10} then represent A ∩ B in Venn diagram.
4. A = {x: x is a factor of 12} and B = {x: x is a factor of 6} then find A U B and A ∩ B?
5. Draw the Venn diagrams of (A – B) , (A ∩ B) and (B – A) in a single picture by shading differently. What can you conclude about A U B?
6. Universal set U= {1,2,3,……, 10}, A = { 2,4,6,8,10} and B = {4,6}. Represent these sets in Venn diagram.
7. If A = {3,4,7} then find A U ∅ and ∅ U A**.** What can you notice?
8. “The intersection of two disjoint sets is null set”. Justify your answer.
9. Let A is set of the letters in the word ‘FOLLOW’. B is set of the letters in the word ‘WOLF’. Check if A and B are equal.
10. In a class, 20 boys are study Mathematics and 17 study Science, of these 10 studies both. How many students are there in the class? (all are study any one of the both).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| U | **∅** | A | B | C |
| **∅** |  |  |  |  |
| A |  |  |  |  |
| B |  |  |  |  |
| C |  |  |  |  |

1. Let A = {x}, B = {y} and C = {x, y}. Complete the following table which gives the union of any two sets.
2. Given n(A U B) = 50, n(A) = 30 and n(A ∩ B) = 12 then find n(B)?
3. Prove that “The intersection of two sets is Commutative” by taking example?
4. A = {1,3,4,5,6} and B = {1,5,9,10}. Draw overlapping diagrams of two set A and B. Show the elements of each set in that diagram and find A U B.
5. In 10th class of a school, 15 students play Volley ball, 13 play Cricket and 5 play both games. How many students are there in the class who play only Volley ball and only Cricket?

**4 marks questions**

1. X is a set of factors of 24 and Y is a set of factors of 36, then find X U Y and X ∩ Y by using Venn diagrams and comment on the answer?
2. A = {x: x € N and x is a multiple of 4}, B = {x: x € N and x is a multiple of 6}, C = {x: x € N and x is a multiple of L.C.M of 4 and 6}. Find A ∩ B? How can you relate the sets A ∩ B and C?
3. From the Venn diagram, write the elements of the sets A and B. And verify n(A U B) + n(A ∩ B) = n(A) + n(B)?



1. A = {x: x is a perfect square, x € N, x < 50}, B = {x: x = 8m + 1 where m € N, x < 50}. Find A ∩ B and represent it with Venn diagram.
2. If A = {x: x is a prime number and x < 10}, B = {x: x is factors of 6}. Find A U B, A ∩ B and A – B.
3. A = {x: x = 2n + 1, n € N, n ≤ 5}, B = {x: x is a composite number and x ≤12}, then show that (A U B) – (A ∩ B) = (A – B) U (B – A).
4. If A = {x: x is a prime less than 20} and B = {x: x is a whole number than less than 10}, then verify n(A U B) = n(A) + n(B) – n(A ∩ B)?
5. If A = {1,2,3,4} and B = {1,2,3,5,6}, then find (I) A ∩ B (II) B ∩ A (III) A – B (iv) B – A. What do you observe?
6. If A = {3,6,9,12,15,18,21} and B = {4,8,12,16,20}, then check whether A U B = B U A and A – B = B – A.
7. If A = {x: x is a natural number less than 6}

B = {x: x is a prime number which is a divisor of 60}

C = {x: x is an odd number less than 10}

D = {x: x is an even natural number which is a divisor of 48}

then write the roster form for all above sets and find (i) A U B (ii) B ∩ C (iii) A – D (iv) D – B.

1. If A = {2,3,4} and B = {3,4,5} then find (i) A U B (ii) A ∩ B (iii) A – B (iv) B – A (v) (A – B) U (B – A) (vi) (A U B) – (A ∩ B). What do you notice?
2. If A = {2,5,6,7}, B = {5,6,8,9} and C = {3,5,7,8} then find (i) A ∩ B (ii) A ∩ C (iii) B U C (iv) A ∩ (B U C) (v) (A ∩ B) U (A ∩ C). What do you notice?
3. If A = {1,3,5,6}, B = {2,3,7,9} and C = { 1,3,5,9} then find (i) B U C (ii) A – B (iii) A – C (iv) A – (B U C) (v) (A – B) ∩ (A – C). What do you notice?
4. Prove that, “If A ⊂ B, then A U B = B” by taking an example.