Overlapping Sets:- $A = \{1, 2, 3, 4, 5\}$ $B = \{2, 3, 7, 8, 9\}$

Common elements of A and B = $\{2, 3\}$
If two sets have at least one common element then they are said to be overlapping sets.

Ex-10(D)

i) $\{3, 5, 7, \ldots\}$
ans) Infinite

ii) $\{1, 2, 3, 4\}$
ans) Finite

iii) $\{\ldots, -3, -2, -1, 0, 1, 2\}$
ans) Infinite

iv) $\{20, 30, 40, 50, \ldots, 200\}$
ans) Finite

2) i) Set of counting numbers between 5 and 6. ☐
ans) Empty

ii) Set of odd numbers between 5 7 and 19. ☒
ans) This set is not empty.

iii) Set of odd numbers between 7 and 9. ☑
ans) Empty.

iv) Set of even numbers that are not divisible by 2. ☑
ans) Empty.

v) $\{0\}$
ans) This set in not empty.

3) i) {3, 5, 7} and {5, 3, 7}
ans) Both equal and equivalent

ii) {8, 6, 10, 12} and {3, 2, 4, 6}
ans) Equivalent

iii) {7, 7, 2, 1, 2} and {1, 2, 7}
ans) Equal

iv) {2, 4, 6, 8, 10} and {a, b, d, e, m}
ans) Equivalent

4) i) Set of integers.
ans) As, integers are infinite., this set is infinite.

ii) {Multiples of 5}
ans) As, the multiples of a no. are infinite, this set is infinite.

iii) {Fractions between 1 and 2}
ans) As, there are infinite number of fractions between 1 and 2, this set is infinite.

iv) {Number of people in India}
ans) As, a finite number of people live in India, this set is a finite set.

v) Set of trees in the world.
ans) As, there are infinite no. of trees in the world, this set is infinite set.

vi) Set of leaves on a tree.
ans) As, there are infinite no. of leaves in a tree. So, this set is infinite set

vii) Set of children in all the schools of Delhi.
ans) As, there are a finite no. of children studying in the schools of Delhi, this set is a finite set.

viii) $\{\ldots, -4, -2, 0, 2, 4, 6, 8\}$
ans) Infinite

ix) $\{-12, -9, -6, -3, 0, 3, 6, \ldots\}$
ans) Infinite

x) {Number of points in a line segment 4 cm long}.
ans) Infinite

5) i) {Prime numbers divisible by 2}
ans) Not empty

ii) {Negative natural numbers}
ans) Empty

iii) {Women with height 5 metre}
ans) Empty

iv) {Integers less than 5}
ans) Not empty

v) {Prime numbers between 17 and 23}
ans) Not empty

vi) Set of even numbers not divisible by 2.
ans) Empty

vii) Set of multiples of 3 that are more than 9 but less than 15. ans) Not empty