Ex - 10 (D)

1) State whether the given set is infinite of finite:

i) {3, 5, 7, ...}
Ans) Infinite

ii) {1, 2, 3, 4} finite

iii) {..... -3, -2, -1, 0, 1, 2} infinite

iv) {20, 30, 40, 50, ..., 200} finite

2) Which of the following set is empty?

i) Set of counting numbers between 5 and 6? Yes

ii) Set of odd nos. between 7 and 19. No

iii) Set of odd nos. between 7 and 9. No

iv) Set of even numbers that are not divisible by 2. No

v) {0} Not a empty set

3) i) {3, 5, 7} and {5, 3, 7}
Ans) Equivalent and equal

ii) {2, 4, 6, 8} and {3, 2, 4, 6}
Ans) Equivalent set

iii) {7, 7, 7, 7} and {1, 2, 1}
Ans) Equal set

iv) {2, 4, 6, 8, 10} and {a, b, c, e, m}
Ans) Equal Equivalent set.

4) i) Set of integers Infinite
ii) {multiples of 5} Infinite
iii) {Fraction between 1 and 2} Infinite
iv) {Number of people in India} Infinite
v) Set of trees in the world Infinite
vi) Set of leaves on a tree Finite
vii) {....., -4, -2, 0, 2, 4, 6, 8} Infinite
x) {-12, -9, -6, -3, 0, 3, 6} Infinite
x) {No. of points on a line segment 4 cm long} Infinite

Cardinal Set

The no. of elements in a set
A = {1, 2, 3, 4, 5}
n(A) = 5

Ex - 10 (D)

5. State whether or not the following sets are **empty :**
   (i) { Prime numbers divisible by 2 } Not empty (ii) { Negative natural numbers } Empty
   (iii) { Women with height 5 metre } Empty (iv) { Integers less than 5 } Not empty
   (v) { Prime numbers between 17 and 23 } Not empty
   (vi) Set of even numbers not divisible by 2 empty
   (vii) Set of multiples of 3 that are more than 9 and less than 15. not empty

6. State if the given pairs of sets are **equal sets** or **equivalent sets :**
   (i) { Natural numbers less than five } and { Letters of the word 'BOAT' }. Equivalent Sets
   (ii) { 2, 4, 6, 8, 10 } and { even natural numbers less than 12 }. equal sets
   (iii) { 1, 3, 5, 7, ... } and set of odd natural numbers. Equal
   (iv) { Letters of the word MEMBER } and { Letters of the word 'REMEMBER' }. Equal
   (v) { Negative natural numbers } and { 50th day of a month } Equivalent sets
   (vi) { Even natural numbers } and { Odd natural numbers }. Equivalent sets

7. State whether the following are **finite** or **infinite sets :**
   (i) { 2, 4, 6, 8, ..., 800 } finite (ii) { ...., – 5, – 4, – 3, – 2 } Infinite
   (iii) { x : x is an integer between – 60 and 60 } Finite
   (iv) { No. of electrical appliances working in your house } Finite
   (v) { x : x is a whole number greater than 20 } Infinite
   (vi) { x : x is a whole number less than 20 }. Finite

8. For each statement, given below, write **True** or **False :**
   (i) { ...., – 8, – 4, 0, 4, 8 } is a finite set. F
   (ii) { – 32, – 28, – 24, – 20, ..., 0, 4, 8, 16 } is an infinite set. F
   (iii) { x : x is a natural number less than 1 } is the empty set. T
   (iv) { Whole numbers between 15 and 16 } = { Natural numbers between 5 and 6 }. T
   (v) { Odd numbers divisible by 2 } is the empty set. T
   (vi) { Even natural numbers divisible by 3 } is the empty set. F
   (vii) { x : x is positive and x < 0 } is the empty set. T
   (viii) { ...., –5, –3, –1, 1, 3, 5, ... } is a finite set. F

9. State, giving reasons, which of the following pairs of sets are **disjoint sets** and which are **overlapping sets** :
   (i) A = { Girls with ages below 15 years } and Disjoint
   B = { Girls with ages above 15 years }
   (ii) C = { Boys with ages above 20 years } and overlapping
   D = { Boys with ages above 27 years }
   (iii) A = { Natural numbers between 35 and 60 } and overlapping
   B = { Natural numbers between 50 and 80 }
   (iv) P = { Students of Class IX studying in I.C.S.E. Board } and overlapping
   Q = { Students of Class IX }
   (v) A = { Natural numbers that are multiples of 3 and less than 30 } and overlapping
   B = { Natural numbers divisible by 4 and lying between 20 and 45 }
   (vi) P = { Letters in the word 'ALLAHABAD' } and Disjoint
   Q = { Letters in the word 'MUSSOORIE' }