Ex-10(D)

1) state wheather the given set is ~~de~~finite or infinite:

i) $\{3, 5, 7, \ldots\}$ - infinite

ii) $\{1, 2, 3, 4\}$ - finite

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

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

2) Which of the following sets is empty?
i) Set of counting numbers between 5 and 6. Yes
ii) Set of odd numbers between 7 and 19. NO
iii) Set of odd numbers between 7 and 9. Yes
iv) Set of even numbers that are not divisible by 2. Yes
v) {0}. NO

3) State which pair sets given below are equal sets and which are equivalent:

i) {3, 5, 7} and {5, 3, 7} - equal set
ii) {8, 6, 10, 12} and {3, 2, 4, 6} - equivalent set
iii) {7, 7, 2, 1, 2} and {1, 2, 7} - equal set
iv) {2, 4, 6, 8, 10} and {a, b, d, e, m} - equivalent set

4) State which of the following are finite set and which are infinite:

i) Set of integers. - Infinite
ii) {Multiples of 5} - Infinite
iii) {Fractions between 1 and 2} - finite
iv) {Number of people in India} - finite
v) Set of trees in the world - finite
vi) Set of leaves on a tree - infinite
vii) Set of children in all the schools of Delhi - finite
viii) {..., -4, -2, 0, 2, 4, 6, 8} - Infinite
ix) {-12, -9, -6, -3, 0, 3, 6, ...} - Infinite
x) {Number of point in a line segment 4 cm long}. Infinite.

5) State whether or not the following sets are empty:

a) {prime numbers divisible by 2} - Not empty
ii) {Negative natural numbers} - empty
iii) {women with height 5 metre} - Not 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 - not 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'}
ans - Equivalent set
ii) {2, 4, 6, 8, 10} and {even natural numbers less than 12}
ans - equal set
iii) {1, 3, 5, 7, ...} and the set of odd natural numbers
ans - equal set
iv) {Letters of the word 'member'} and {Letters of the word 'REMEMBER'}
ans - equal set
v) {Negative natural numbers} and {50th day of a month}
ans -
vi) {Even natural numbers} and {odd natural numbers}
ans - Equivalent set

7) State whether the following are finite or infinite sets.

i) $\{2, 4, 6, 8, \ldots, 100\}$ - finite
ii) $\{\ldots, -5, -4, -3, -2\}$ - 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) $\{\ldots, -8, -4, 0, 4, 8\}$ is a finite shape. false
ii) $\{-32, -28, -24, -20, \ldots, 0, 4, 8, 16\}$ is a infinite set. false
iii) $\{x : x$ is a natural number less than $1\}$ is the empty set. True
iv) $\{$whole numbers between 15 and 16$\} = \{$Natural numbers between 5 and 6$\}$, True
v) $\{$odd numbers divisible by 2$\}$ is the empty set. True
vi) $\{$Even natural numbers divisible by 3$\}$ is the empty set. True
vii) $\{x : x$ is positive and $x < 0\}$ is the empty set. True
viii) $\{\ldots, -5, -3, -1, 1, 3, 5 \ldots\}$ is a finite set. false.

9) State, giving reasons, which of the following pairs of set are disjoint sets and which are overlapping sets.

i) A = {Girls with ages below 15 years} and
B = {Girls with ages above 15 years}

ans- Disjoint sets because in the set A it talks about the girls who are below than 15 year but in set B it talks about the ages who are above 15 years so for that reason they are considered to be as disjoint set.

ii) C = {Boys with ages above 20 years} and
D = {Boys with ages above 27 years}

ans- Overlapping set because some boys are above 27 years and also above 20 years.

iii) A = {Natural numbers between 35 and 60} and
B = {Natural numbers between 50 and 80}

ans- Overlapping set because the natural numbers from 51 to 59 are common in both.

iv) P = {students of class IX studying in ICSE Board} and
Q = {students of class IX}

ans- Overlapping sets because the students who are studying in ICSE are common.

vi) P = {Letters in the word 'ALLAHBAD'} and
Q = {Letters in the word 'MISSOORIE'}

ans- Disjoint set because there is no common letters