19.7.21

EX- 10(D)

1. State whether the given set is infinite or finite:

(i) $\{3, 5, 7, \ldots\}$ — Infinite
(ii) $\{1, 2, 3, 4\}$ — finite
(iii) $\{\ldots -3, -2, -1, 0, 1, 2\}$ — Infinite
(iv) $\{20, 30, 40, 50, \ldots 200\}$ — finite

2. Which of the following sets is empty?

i) Set of Counting numbers between 5 an 6. empty
ii) Set of odd numbers between 7 and 19. Not empty.
iii) Set of odd numbers between 7 and 9. Empty
iv) Set of even numbers that are not divisible by 2. empty
v) $\{0\}$ not empty.

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

i) $\{3, 5, 7\}$ and $\{5, 3, 7\}$ — Equal
ii) $\{8, 6, 10, 12\}$ and $\{3, 2, 4, 6\}$ — Equivalent
iii) $\{7, 7, 2, 1, 2\}$ and $\{1, 2, 7\}$ — Equal
iv) $\{2, 4, 6, 8, 10\}$ and $\{a, b, d, e, m\}$ — Equivalent.

4. State which of the following are finite sets and which are infinete :—

(i) Sets of integers — Infinite
ii) {Multiples of 5} — Infinite
iii) {Fractions between 1 and 2} — Infinite.

iv) {Number of people in India} — Finite.

v) Set of trees in the world — Infinite

vi) Set of leaves on a tree — finite

vii) Set of children in all the schools of Delhi — finite

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

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

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

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

ii) {2, 4, 6, 8, 10} and {even natural numbers less than 12} — equal

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} — equal.

vi) {Even natural numbers} and {odd natural numbers} — Equivalent.

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 / False.

i) $\{\ldots, -8, -4, 0, 4, 8\}$ is a finite set. — False

ii) $\{-32, -28, -24, -20 \ldots, 0, 4, 8, 16\}$ is an 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 an 6}. — True

v) {Odd numbers divisible by 2} is the empty set. — True

vi) {Even natural numbers divisible by 3} is the empty set. — False

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. Stat, giving reasons, which of the following pairs of sets are disjoint sets and which are overlapping sets : —

i) A = {Girls with ages below 15 yrs} and
B = {Girls with ages above 15 yrs.}
— Disjoint sets (because no girl can be of age below 15 and above 15)

ii) C = {Boys with ages above 20 yrs} and
D = {Boys with ages above 27 years.
— overlapping sets (because boys above 27 are also boys above 20 yrs)

iii) A = {Natural numbers between 35 and 60} and
B = {Natural numbers between 50 and 80}
— overlapping set (because natural numbers from 51 to 59 are common to both sets)

iv) P = {students of class IX studying in ICSE Board} and Q = {students of class IX}
— overlapping set (because students of class IX studing in ICSE board are common)

v) A = {Natural numbers that are multiples of 3 and less than 30} and
B = {Natural numbers divisible by 4 and lying between 20 and 45}
— overlapping sets (because natural number 24 is common to both the sets)

ii) P = {letters in the coord 'ALLAHABAD'} and
Q = {Letters in the word 'MUSSOORIE'}
— Disjoint sets (because no letter is common to both the sets)