SETS

EMPTY SETS

Types of Sets

1. Null Set (or Empty Set or Void Set)

A set which has no element. It is denoted by ϕ or {}.

Examples.

(i) A = Set of odd numbers divisible by 2.

(ii) B = Set of all omnipresent humans.

- (iii) C = Set of all negative natural numbers
- (iv) D = Set of all Greek letters in English alphabet.
- a. $\{0\}$ or $\{\phi\}$ is not an empty set.
- b. ϕ is called the null set and (ϕ) not a null set. Since ϕ is unique.
- c. ϕ is a subset of every set.
- d. Cardinal number of ϕ is zero.
- e. A set having at least one member is non-empty set.

2. Singleton Set

A set having a single element only e.g. $\{\phi\}$, $\{0\}$, $\{2\}$, $\{a\}$ etc. each is sigleton set or unit set.

Examples :

A = Set of present chief justice of India.

$$B = \{x : x^2 = 1, x > 0\}$$

C = {x : x is the slope of all straight lines parallel to x-axis}

3. Pair-Set

A set having two elements only.

e.g. {0, 1}, {± 1}, {x : x is a root of $x^2 - 5x + 6 = 0$ }

4. Set of Sets

A set S having all its elements as sets is called set of sets or a family of sets or a class of sets.

```
e.g. {{1, 2}, {2, 3} {1, 2, 3}} is a set of sets as each member is a set itself.
{{1, 2}, 7, {1, 7, 4}} is not a set of set as 7 is not a set.
```