

## DAVV MBA PYQ

What is Set? Describe different types of sets.

OR

Define the following with suitable examples:

- Finite set
- Infinite set
- Universal set
- Power set
- Proper subset
- Cardinal Number

Solution.

Set:

A set is a collection of definite well defined objects.

A set is a collection of objects which are distinct from each other.

Construction of Set:

In construction of set, two methods are commonly used:

**1. Roster Method (Enumeration):** In this method we prepare a list of objects forming the set, writing the elements one after another between a pair of curly brackets.

For example:

$$A = \{a, b, c, d\}.$$

**2. Description Method:** In this method we describe the set in symbolic language.

For example:

A set of integer numbers which is divisible by 3 is written as,

$$A = \{x : x \text{ is an integer divisible by } 3\}$$

Types of Set:

**1. Finite set :** If a set consisting finite number of elements is known as finite set.

For example:

$$A = \{2, 4, 6, 8\}.$$

**2. Infinite set :** If a set consisting infinite number of elements is known as infinite set.

For example-

The set of all natural numbers.

$$A = \{1, 2, 3, \dots\}$$

**3. Universal set :** A Universal Set is the set of all elements under consideration, denoted by capital U. All other sets are subsets of the universal set.

**4. Power set :** The set of all subset of a set A, is known as power set of A.

For example:

$$A = \{a, b, c\}$$

Then

$$\text{Power set, } P(A) = \{\{\emptyset\}, \{a\}, \{b\}, \{c\}, \{d\}, \{ab\}, \{ac\}, \{ad\}, \{bc\}, \{bd\}, \{cd\}, \{abc\}\}$$

**5. Proper subset :** If B is the subset of A, and  $B \neq A$ , then B is proper subset of A.

For example:

$$A = \{1, 2, 3, 4, 5, 6, 7, 8\} \text{ and } B = \{2, 4, 6, 8\}$$

Then,  $B \subset A$ . (read as B is the proper subset of A)

**6. Singleton set:** If a set consisting only 1 element is known as singleton set.

For example:

$$A = \{a\}.$$

**7. Equal sets:** Two sets A and B consisting of the same elements is known as equal set.

For example:

$$A = \{a, b, c, d\} \text{ and}$$

$$B = \{a, b, c, d\}$$

**8. Empty set:** If a set consisting no elements is known as empty set or null set or void set.

For example:

$$A = \{ \emptyset \}$$

**9. Subset:** Suppose A is a given set, and any set B exist exist whose elements are also an element of A, than B is called subset of A.

For example:

$$A = \{1, 2, 3, 4, 5, 6, 7, 8\} \text{ and } B = \{2, 4, 6, 8\}$$

Than,  $B \subseteq A$ . (read as B is the subset of A)

**Cardinal number:**

The number of elements in a set is known as cardinal number. Cardinal number is represented by  $n(A)$ . Where A is set name.

For example:  $A = \{1,2,3\}$  then,

$$n(A) = 3.$$