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 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,……}

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}

Than

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

5. Proper subset : If B is the subset of A, and B≠A, then B is proper subset of A.

For example:

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

Than, B ⊂ 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} 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 = { ∅ }

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} and B = {2, 4, 6, 8}

Than, B ⊆ 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.