Theory of sets

Defination of the sets

o Set is the basic of mathematics. Set theory is very popular in economic, business and other social science .

o A set is a collection of well define object which are distinct from each other. By" we defined" we mean that given any object, we can find whether it is an element of the sets or not an element of the sets .

Method of expressing a set

○ There are two methods of expressing a set :-

1. Roster method or Tabular methods :- in this method , we write down all the elements of a set in a row, separating every two elements by a comma and enclose them by curly brackets. for example, the set A of natural number 1,3,5,7,9,11 is written as:- A={1,3,5,7,9,11} .

Set builder method:-

2 Defining property or set builder methods:- in this method , we write down a property which given all the elements of the set. For example, A is set of all those odd positive integers which are less than 12, gives us the same data in ,only expressed in different way.

Types of sets :-

1. Finite and infinite sets :- A set which has only finite number of elements is called a finite set and a set which has infinite number of elements is called an infinite set.

Null Or Empty Set

2 null or empty set :- A set which contains no elements ,is called a null set or an empty set .In Tabular form ,this set written as { } and is denoted by symbol .A null set is also known as an empty set or void set .there is only one null set because, logically , there only one way that a set can contain nothing.

Singleton or unit set

3 singleton or unit set:- A unit set contains only one element. The singleton set is of the form A={a}, where A represents the set , and the small alphabet a represents the elements of singleton set .

Universal or unit set :-

4 universal set :- the universal set is a set consisting of all possible elements which occurs in the discussion. It is denoted by E or U .

Disjoint sets :-

5 Disjoint sets:- If two sets have no elements in common, then they are disjoint sets .those sets whose intersection with each other result in a null set .

Sub Set :-

5 Sub set :- If every element of a set A is an element of B, then set A is. called sub set .

Proper subset :-

6 Power set :- power set is the set of all subset of a set A and is denoted by P(A).That is the collection of all subset of a set A is called the power set of A. It is denoted by P(A).In P(A) every element is a set .

Power set :-

7 power set:- The set of all subset of the set A including the set itself and the null or empty set .it denoted by P (A). Basically, this set is the combination of all subsets including null set ,of a given set .

Equal sets:-

8 Equal sets:- Equal sets are defined as the sets that have the same cardinality and all equal elements. In other words, two or more sets are said to be equal sets if they have the same elements and the same number of elements.

Equivalent sets :-

9 Equivalent sets:- sets that contain the same number of elements, although the elements themselves may be different. For example set A{5,10,15,20}is equivalent sets .

Comparable and non comparable sets :-

10 comparable and non comparable:- In mathematic, two elements with respect to a binary relation .if non contains the other than the two sets are said to be incomparable.

Cardinal number of a finite set :-

11 cardinal number of a finite set:- The number of elements or members in a set is the cardinal number of that set .if A is a finite set and it has elements equal to N .then the cardinal number of set A is N. Note: The cardinal number of an empty set is always zero.