**Inheritance** : It is a process of acquiring the characterstics and behavior by a subclass from the base class.

**TYPES OF INHERTANCE:**

1. Single level :

BASE CLASS

SUBCLASS

1. MULTIPLE INHERTANCE

BASE CLASS 1

BASE CLASS 2

SUBCLASS

1. HIERARCHIAL INHERITANCE:

BASE CLASS

SUB CLASS 3

SUB CLASS 2

SUB CLASS

1. MULTILEVEL INHERITANCE

X

Y

Z

1. HYBRID INHERITANCE

B

Z

Y

X

A

What is the use of **extends** keyword ?

Keyword extends is used to inherit the properties from base class by subclass

public class Base

{

int a ;

}

public class Subclass extends Bae

{

}

Q Define method overriding?

It is a process of defining a function in the sub class with the same function signature as it is defined in base class.

public class Base

{

public void showDetails( )

{

System.out.println(“Base class”);

}

}

public class Subclass extends Base

{

public void showDetails( )

{

System.out.println(“sub class”);

}

}

What is the use of super keyword ?

Super keyword is used to access properties and function , in base class from derived class ,which are hidden due to overriding by the derived class.

Q1. A superclass Number is defined to calculate the factorial of a number. Define a subclass Series to find the sum of the series S = 1! + 2! + 3! + 4! + ………. + n! [5]  
The details of the members of both classes are given below:  
Class name: Number  
Data member/instance variable:  
n: to store an integer number  
Member functions/methods:  
Number(int nn): parameterized constructor to initialize the data member n=nn  
int factorial(int a): returns the factorial of a number  
(factorial of n = 1 × 2 × 3 × …… × n)  
void display()  
Class name: Series  
Data member/instance variable:  
sum: to store the sum of the series  
Member functions/methods:  
Series(…) : parameterized constructor to initialize the data members of both the classes  
void calsum(): calculates the sum of the given series  
void display(): displays the data members of both the classes  
Assume that the superclass Number has been defined. Using the concept of inheritance, specify the class Series giving the details of the constructor(…), void calsum() and void display().  
The superclass, main function and algorithm need NOT be written.