

4) Classes and Objects

1) Defining a Class and Object in Java

Answer :-

1) Class : is an collection of data member(variables) and member function(methods, process) with its behaviors

sy:

```
class classname
{
    data member
    member function
}
```

2) object : is a instances of an class i.e.

:when you create class variables also called..

:its uses new keyword and class constructor to create object

:access whole properties of an class except private

sy:

```
classname objectname = new constructor();
```

Example:-

class Student

```
{
    String name;
    int age;

    public void getStudentData()
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the Name of Student : ");
        name=sc.nextLine();
        System.out.println("Enter the Age of Student : ");
        age=sc.nextInt();
        sc.close();
    }

    public void showStudentData()
    {
        System.out.println("Name of the Student : "+name);
        System.out.println("Age of the Student : "+age);
    }
}
```

```
}  
public class StudentClass  
{  
    public static void main(String[] args)  
    {  
        Student s1=new Student();  
        s1.getStudentData();  
        s1.showStudentData();  
    }  
}
```

2) Constructors and Overloading

Answer :- Constructor : Is a Special member function (Method) because it has a same name as the class name. Does not return any value even void.

To initialize value of your data members at object creation time
: may use access modifier except private
: when you create class object you create at that time to call constructor.
: there are mainly 2 types
1) default : no any argument in constructor
2) parameterized: may have one or more argument in constructor

Overloading : If we create two or more constructor in the single class but different its behavior (data type, argument). When you want to access constructor data then you want to create different object with its behavior.

3) Object Creation, Accessing Members of the Class

Answer :-

In Java, an object is created using the new keyword followed by the class name and parentheses containing the required parameters.

For example:

```
MyClass obj = new MyClass();
```

To access members of a class, you can use the dot notation. For instance, to access a method myMethod() or a variable myVariable of an object obj, you would use:

```
obj.myMethod();
```

obj.myVariable;

4) this Keyword

Answer :- In Java, the this keyword is a reference to the current object of the class. It is used to:

- Distinguish instance variables from local variables with the same name
- Pass the current object as an argument to a method
- Return the current object from a method
- Call a method from another method of the same class

For example:

```
public class Person
{
    public void greet()
    {
        System.out.println("Hello, my name is " + this.name);
    }
}
```