1. Why do we need static keyword in java programming.

Ans:- 1. In some situation, it may be necessary to define a class member which will be used independent of any object of the class.

2. When a member is declared static, it can be accessed before any objects of its class are created and without reference to any object.

3. The static keyword is a property of a class rather than instance of the class.

4. The static keyword is used for constat variable or a method that willbe same for every instance of a class.

5. The static keyword is mainly used for memory management in java.

6. A static keyword can be applied with variables, block, function and class.

7. Static variable has single copy for the whole class and does not depend on the object.

1. What is class loading and how does the java program actually executes?

Ans:- 1. Class loading is a process of loading class files into the JVM at runtime. It is responsible for loading classes from various sources, such as the file system, network and databases, making them available to the JVM for execution.

2. The class loading process is divided in to three phases

1. **Loading**

Class loader locates the class files with the using the fully qualified class name, read the class file and convert in to class object. The class object contains the metadata of the class such as fields and methods and constructor.

1. **Linking**

**i) Verify**

In verify stage of linking is check whether the written program is in proper format or in property structure or not. If structure is not proper the verify exception can occur at runtime.

**ii) prepare**

In preparation stage, memory of static variable and static method get allocated in heap memory with default value.

iii) Resolve

1. **initialization**

In initialization stage, initialize the class variable with default value and static initialization block get executed and value is initialized to static variable.

3) can we mark a local variable as static.

Ans:- No, we cant mark static to local variable.

4) Why is a static method also called a class method.

Ans:- static method tied to class rather than instance of class. No need to create an instance of class to invoke static method.static method can invoke with the use of class name and dot operator.Therefore static method also called a class method.

5) Why is the static block is executed before the main method in java?

Ans:- static block get executed at the time of class loading process and after that JVM call main method. Therefore static block is executed before the main method in java.

6) What is the use of static keyword Explain with the examples?

Ans:- static keyword is used to indicate that member with static keyword belongs to class not instance of class. It can be accessed without the creation of an object of class.

Example:-

Class Demo{

Int pa;

static float rateOfInterest; //constant variable for every object to calculate simple interest

static

{

rateofInterest = 4.5f;

}

Void input(){

Scanner sc = new Scanner(System.in);

System.out.println(“Enter the amount required”);

Pa = sc.nextInt();

}

}

Public class Mains{

Public static void main(String[] args){

Demo d1 = new Demo();

d1.input();

Demo d2 = new Demo();

d2.input();

}

}

7) The difference between static variable and instance variable in java?

Ans:-

| Static variable is called as class variable | Instance variable is called as non static variable |
| --- | --- |
| Class variables can be accessed in static block, static method, instance block, instance method and method of the inner class. | Instance variables can be accessed only inside a instance method and method of inner class. |
| Class variable resolve always at compile time. | Instance variable resolve always at run time. |
| class variable cannot be serialized in java | Instance variable can be serialized in java |
| static members is object independent | Instance members are dependent on object |

8) Difference between static and non static member of a class.

Ans:- **static**

1. **Static variables also called as class variable.**
2. **If values of variable is constant or doesn’t change from object to object then we use static keyword.**
3. **These variables get memory in method area.**
4. **Inside a static area we can access only static variable only.**

**Non static**

1. **Non static variables as called as instance variable**
2. **It is dependent on object.**
3. **If values of variable change from object to object then we used instance variable.**
4. **Thes variable memory get allocated in Heap memory.**