Assignment 23(map and generics)

Ans 1.Map in java: Map contains values on the basis of key and value pair. Each key and value pair is known as Entry. It also contains unique keys. It is useful if we want to search ,insert and delete elements on the basis of key.

Ans 2.Implementation of Map in Java: We can implement map in java from two interfaces using Map and SortedMap .The SortedMap interface extends the Map interface , and there are three classes to implement map that are HashMap , LinkedHashMap and TreeMap.

Ans 3.Difference between HashMap and TreeMap:

HashMap	TreeMap
Order of insertion is not preserved.	Order of insertion is preserved.
It allows one null key and null value.	It does not allow null key but allow multiple null values.
It consumes more memory space.	It consumes less memory space.
It has only one basic feature.	It has advanced features.
It’s speed is fast.	It’s speed is slow.

Ans 4.Checking if key exist in a Map:The java.util.HashMap contains key() method which is used to check if the particular key is mapped into the HashMap or

not. It takes key as the parameter and returns True ,if that element is mapped in the map .

Ans 5.Generics in Java : Generics means to create classes that work with different data types. An entity such as class, interface, or method or that operates on a parameterized type in a generic entity.

Ans 6.Benefits of Generics:

- Type safety
- Code reusability
- Greater flexibility
- Type casting is not required
- Compile time checking

Ans 7.Generics Class is implemented exactly like a non-generic class. The only difference is that it contains a type parameter section. The classes accept one or more parameters, are known as parameterized types.

Ans 8.Type parameter in type Java Generics are :

A type parameter, also known as a type variable, is an identifier that specifies a generic type name. The type parameters can be used to declare the return type and act as placeholders for the types of the arguments passed to the generic method, which are known as actual type arguments.

Ans 9.Generic Method in Java: Generic methods are methods that introduce their own type parameters. This is similar to declaring a generic type, but the type parameter's scope is limited to the method where it is declared. Static and non-static generic methods are allowed, as well as generic class constructors.

Ans 10.Differnce between ArrayList and ArrayList<T>

ArrayList	ArrayList<T>
It is non generics version of ArrayList.	It is generics version of ArrayList with type (T) parameter.
It doesn’t assure type safety.	It assures type safety.
It allows to add any type of Objects.	It allows to add specific type of objects only.
Explicit type casting is needed.	No explicit type casting is required.