**Core JAVA Concept Questions**

* **Oops.**

1. **What is Oops?**

-> OOPS is object oriented programming which is concept based language.Different concepts are encapsulation,inheritance,polymorphism and abstraction.

1. **What is Encapsulation?**

-> Encapsulation is binding the methods and attributes together in a class.

1. **What is Inheritance?**

-> Inheritance is sub class acquiring the behavior and functionalities of the super class.

1. **Will Java support Multiple Inheritance through classes?**

-> Java supports multiple inheritance through different classes.

1. **What is Polymorphism?**

-> polymorphism is doing a task in many ways. There are 2 types of polymorphism that are over riding and overloading.Over loading is compile time polymorphism and over riding is run time polymorphism.

1. **What is Method Overloading?**

-> Method Overloading is having a same method name in a same class with different parameters.

1. **What is Method Overriding?**

-> Method over riding is having a same method name in different classes with same parameters.

1. **Difference b/w Overriding and Overloading?**

-> Methods having same method name with in same class and different classes.

1. **What is Abstraction?**

-> Abstraction is hiding the complex code and unnecessary details and just showing the functionality.

**10.What is Class?**

-> Class is the blue print of object.

**11.What is Object?**

-> Object is the real time entity that has behaviour.

**12. What are the Object Class Methods ?**

-> Equals, toString, hash-code, getClass, finalize, clone, wait, notify, notify all.

**13.what is IS-A relation?**

-> IS-a relation is through object creation.

**14.What is Has-A relation?**

-> HAS-A relation is through inheritance.

* **Constructors.**

1. **What is Constructor?**

->Constructor is a special type of method. Constructor has same name as class name. Constructors are mainly for initializing.

1. **How can we create a Constructor?**

-> Constructors are created while object creation.If we do not explicitly give a constructor then the JVM will create the default constructor internally called default constructor.

1. **How can we access Constructor?**

-> We can Access constructors while creation of objects.

1. **How many ways can we create a Constructors?**

-> They are 2 types of Constructors that are : Default constructors and Parameterized constructors.

1. **What is the main Purpose of Constructors?**

-> Constructors are mainly for initializing.

1. **Can we declare Constructor as void?**

-> Constructors doesn’t have any return type not even void also.If we declare as a void the compiler will consider it as a method not as a constructor.

1. **Does every Class have a Constructor?**

-> Every class needs at-least one Constructors that may be default constructor also.

1. **Does Constructors are Overloaded?**

-> Always constructors are overloaded.

1. **What is this Keyword in Constructor?**

-> This keyword is always pointing to instance variable.This is used to call one constructor in another constructor (within a class).

1. **What is super Keyword in Constructor?**

-> Super keyword always used to call super class constructor.

1. **What is Copy Constructor?**

-> By Copy Constructor object reference is copied & calls the constructor.

* **Static.**

1. **What is static?**

-> Static is a Keyword. We can declare static as Methods & Variables.

If Static variable is modified it will reflect globally.

1. **How can we declare the static keyword?**

-> We can access static variables & static methods directly through (Class-name. method name) and (Class-name.variable name).

1. **Can Static method access static methods and variables ?**

-> Static methods can access static methods and static variables.

1. **Can Static method access non-static methods and variables ?**

-> Static methods can not access non-static methods and non-static variables.

1. **Can non-Static method access static methods and variables ?**

-> Non-Static methods can access static methods and static variables.

1. **What is Static block?**

-> Whenever class is loaded into JVM at that time static block is initialized.

* **Final.**

1. **What is Final?**

-> Final is a Keyword. We can declare final as Variables, Methods & Class. Final variables can not be modify. Final methods can not be Override. Final Class can not be extends (Inherited).

1. **How can we declare with final?**

We can declare final as Variables, Methods & Class.

1. **Can final variables modified?**

-> No final variables cannot be modified.

1. **Can final methods override?**

-> No final methods cannot be over-rided.

1. **Can final class inherit?**

->No final methods cannot be inherited.

1. **what is the advantage of final Keyword?**

-> when a method or variable or class is declared as final then they cannot be modified over-rided or inherited.

1. **How can the final variable be initialized?**

-> Final variable can be initialized while calling the constructor.

* **Strings.**

1. **What is String class?**  
   -> String is Final Class. Strings are immutable. String class having methods. All string class methods are non-synchronized.

**2. Why strings are immutable?**

-> Once we declare any string object, it is constant. If we are trying to modify an existing string it will create another memory location, the existing object is eligible for garbage Collection.

**3. What is String constant pool?**

-> In string constant pool the strings are created by using string literals.

1. **How many ways we can declare strings?**

-> By using string literals and new key word.

1. **What is Synchronize and non-Synchronize?**

-> Synchronized- Tasks are performed in a single way like one by one. Synchronize is thread safety.

Non-synchronized- All tasks are performed at a time randomly.

**6. What is String Buffer?**  
-> String is Final Class. Strings are mutable. String class having methods. All string class methods are synchronized.It is not recommended to use in development but still in API.

1. **What are the methods of String Buffer?**

-> Methods: append(),insert(),delete(),replace(),reversed(),capacity(),length().

1. **What is String Builder?**-> String is Final Class. Strings are mutable. String class having methods. All string class methods are non-synchronized.
2. **What are the methods of string builder?**

-> Methods: append(),insert(),delete(),replace(),reversed().

1. **Difference between String Class,String Buffer & String Builder?**

-> String class: Immutable and non-synchronized.

-> String buffer: Mutable and synchronized.

-> String builder: Mutable and non-synchronized.

1. **Which is better String-builder or String-buffer?why?**

-> String builder is better because it is mutable and non-synchronized and string buffer is not advised to use in development.

1. **What is split method?**

-> Split method is used to split a sentence like at the given letter or space or word.

1. **Can we create our own immutable class?**

->We can declare class as final. The class is declared as final so that it cannot be sub classed. The variables are declared as private.

* I**nterfaces.**

1. **What is Interface?**
2. Interface is a keyword.
3. We can declare methods signatures only but not implementations.
4. By default all interface methods are abstract.
5. **How can we declare Interface?**

-> We can declare interface by interface keyword.

1. **Can we declare variables inside Interface?**

-> We can declare variables inside the interface all are public static final.

1. **All interface methods in class are?**

-> By default all interface methods are abstract.

1. **Which Keyword is used to inherit Interface to class?**

-> Implements keyword is used to inherit interface to class

1. **Which Keyword is used to inherit from one Interface to another?**

-> Using extends keyword ,One interface can extend other interface.

1. **Can class implements more than one Interface?**

-> One class can implements more than one interface.

1. **What happens if we didn’t override all the interface methods ?**

-> If any class implements interface that class should override all interface methods otherwise the class will be showing compile time error.

1. **Can we create object to interface?**

-> We cannot create objects to interface, but we can create references to interface.

1. **Does Java support Multiple Inheritance ?**

-> Yes, Java will support Multiple inheritance through interface.

1. **Can we create Interface without any methods?**

-> Yes we can create interface without any methods(Zero methods).

* **Abstract Class.**

1. **What is Abstract Class?**

-> Abstract is a keyword.Abstract class having abstract methods and concrete(implemented) methods. If any class having one abstract method that class should be declare as abstract keyword, otherwise the class will be showing compile time error.

1. **What are the methods can abstract class have?**

-> Abstract class can have both abstract class and concrete class.

1. **Can abstract class extends another class?**

-> Yes.abstract class can be extended in other classes but the abstract class methods should be over-rided in that class.

1. **Can we create object to abstract?**

-> We cannot create object to abstract class but we can create reference to abstract class.

1. **How can we access abstract class?**

-> We cannot create objects to abstract class but we can create reference to abstract class to access them.

1. **Can we declare abstract class with out abstract methods ?**

-> Yes**,**We can declare abstract class with zero abstract methods.

1. **Can we create constructor to abstract class?**

-> Yes ,We Can Create Constructor to Abstract Class.

1. **How can we access abstract class constructor?**

-> Yes ,We Can Access abstract class constructor through Subclass.

1. **What happens if we didn’t override all the abstract methods ?**

-> If any class extends abstract class, that class should be override all abstract all methods, otherwise the class will be showing compile time error.