Q: What is the difference between an Interface and an Abstract class?

A: An abstract class can have instance methods that implement a default behavior. An Interface can only declare constants and instance methods, but cannot implement default behavior and all methods are implicitly abstract. An interface has all public members and no implementation. An abstract class is a class which may have the usual flavors of class members (private, protected, etc.), but has some abstract methods.

Q: What is the purpose of garbage collection in Java, and when is it used?

A: The purpose of garbage collection is to identify and discard objects that are no longer needed by a program so that their resources can be reclaimed and reused. A Java object is subject to garbage collection when it becomes unreachable to the program in which it is used.

Q: Describe synchronization in respect to multithreading.

A: With respect to multithreading, synchronization is the capability to control the access of multiple threads to shared resources. Without synchonization, it is possible for one thread to modify a shared variable while another thread is in the process of using or updating same shared variable. This usually leads to significant errors.

Q: Explain different way of using thread?

A: The thread could be implemented by using runnable interface or by inheriting from the Thread class. The former is more advantageous, 'cause when you are going for multiple inheritance..the only interface can help.

Q: What are pass by reference and passby value?

A: Pass By Reference means the passing the address itself rather than passing the value. Passby Value means passing a copy of the value to be passed.

Q: What is HashMap and Map?

A: Map is Interface and Hashmap is class that implements that.

Q: Difference between HashMap and HashTable?

A: The HashMap class is roughly equivalent to Hashtable, except that it is unsynchronized and permits nulls. (HashMap allows null values as key and value whereas Hashtable doesnt allow). HashMap does not guarantee that the order of the map will remain constant over time. HashMap is unsynchronized and Hashtable is synchronized.

Q: Difference between Vector and ArrayList?

A: Vector is synchronized whereas arraylist is not.

Q: Difference between Swing and Awt?

A: AWT are heavy-weight componenets. Swings are light-weight components. Hence swing works faster than AWT.

Q: What is the difference between a constructor and a method?

A: A constructor is a member function of a class that is used to create objects of that class. It has the same name as the class itself, has no return type, and is invoked using the new operator.

A method is an ordinary member function of a class. It has its own name, a return type (which may be void), and is invoked using the dot operator.

Q: What is an Iterator?

A: Some of the collection classes provide traversal of their contents via a java.util.Iterator interface. This interface allows you to walk through a collection of objects, operating on each object in turn. Remember when using Iterators that they contain a snapshot of the collection at the time the Iterator was obtained; generally it is not advisable to modify the collection itself while traversing an Iterator.

Q: State the significance of public, private, protected, default modifiers both singly and in combination and state the effect of package relationships on declared items qualified by these modifiers.

A: public : Public class is visible in other packages, field is visible everywhere (class must be public too)

private : Private variables or methods may be used only by an instance of the same class that declares the variable or method, A private feature may only be accessed by the class that owns the feature.

protected : Is available to all classes in the same package and also available to all subclasses of the class that owns the protected feature.This access is provided even to subclasses that reside in a different package from the class that owns the protected feature.

default :What you get by default ie, without any access modifier (ie, public private or protected).It means that it is visible to all within a particular package.

Q: What is an abstract class?

A: Abstract class must be extended/subclassed (to be useful). It serves as a template. A class that is abstract may not be instantiated (ie, you may not call its constructor), abstract class may contain static data. Any class with an abstract method is automatically abstract itself, and must be declared as such.

A class may be declared abstract even if it has no abstract methods. This prevents it from being instantiated.

Q: What is static in java?

A: Static means one per class, not one for each object no matter how many instance of a class might exist. This means that you can use them without creating an instance of a class.Static methods are implicitly final, because overriding is done based on the type of the object, and static methods are attached to a class, not an object. A static method in a superclass can be shadowed by another static method in a subclass, as long as the original method was not declared final. However, you can't override a static method with a nonstatic method. In other words, you can't change a static method into an instance method in a subclass.

Q: What is final?

A: A final class can't be extended ie., final class may not be subclassed. A final method can't be overridden when its class is inherited. You can't change value of a final variable (is a constant).

Q: What is OOPs?

Ans: Object oriented programming organizes a program around its data,i.e.,objects and a set of well defined interfaces to that data.An object-oriented program can be characterized as data controlling access to code.

Q: what is the difference between Procedural and OOPs?

Ans:

a) In procedural program, programming logic follows certain procedures and the instructions are executed one after another. In OOPs program, unit of program is object, which is nothing but combination of data and code.

b) In procedural program,data is exposed to the whole program whereas in OOPs program,it is accessible with in the object and which in turn assures the security of the code.

Q:) What are Encapsulation, Inheritance and Polymorphism?

Ans: Encapsulation is the mechanism that binds together code and data it manipulates and keeps both safe from outside interference and misuse.

Inheritance is the process by which one object acquires the properties of another object.

Polymorphism is the feature that allows one interface to be used for general class actions.

Q: What is the difference between Assignment and Initialization?

Ans: Assignment can be done as many times as desired whereas initialization can be done only once.

Q: What are Class, Constructor and Primitive data types?

Ans: Class is a template for multiple objects with similar features and it is a blue print for objects. It defines a type of object according to the data the object can hold and the operations the object can perform. Constructor is a special kind of method that determines how an object is initialized when created.

Primitive data types are 8 types and they are: byte, short, int, long, float, double, boolean, char

Q: What is an Object and how do you allocate memory to it?

Ans: Object is an instance of a class and it is a software unit that combines a structured set of data with a set of operations for inspecting and manipulating that data. When an object is created using new operator, memory is allocated to it.

Q: What is the difference between constructor and method?

Ans: Constructor will be automatically invoked when an object is created whereas method has to be called explicitly.

Q; What are methods and how are they defined?

Ans: Methods are functions that operate on instances of classes in which they are defined. Objects can communicate with each other using methods and can call methods in other classes.Method definition has four parts. They are name of the method, type of object or primitive type the method returns, a list of parameters and the body of the method. A method's signature is a combination of the first three parts mentioned above.

Q: What is the use of bin and lib in JDK?

Ans: Bin contains all tools such as javac, appletviewer, awt tool, etc., whereas lib contains API and all packages.

Q: What is casting?

Ans: Casting is used to convert the value of one type to another.

Q: How many ways can an argument be passed to a subroutine and explain them?

Ans: An argument can be passed in two ways. They are passing by value and passing by reference.Passing by value: This method copies the value of an argument into the formal parameter of the subroutine.Passing by reference: In this method, a reference to an argument (not the value of the argument) is passed to the parameter.

Q: What is the difference between an argument and a parameter?

Ans: While defining method, variables passed in the method are called parameters. While using those methods, values passed to those variables are called arguments.

Q: What are different types of access modifiers?

Ans: public: Any thing declared as public can be accessed from anywhere.

private: Any thing declared as private can't be seen outside of its class.

protected: Any thing declared as protected can be accessed by classes in the same package and subclasses in the other packages.

default modifier : Can be accessed only to classes in the same package.

Q: What is final, finalize() and finally?

Ans: final : final keyword can be used for class, method and variables.A final class cannot be subclassed and it prevents other programmers from subclassing a secure class to invoke insecure methods.A final method can' t be overriddenA final variable can't change from its initialized value.finalize( ) : finalize( ) method is used just before an object is destroyed and can be called just prior to garbage collecollection finally : finally, a key word used in exception handling, creates a block of code that will be executed after a try/catch block has completed and before the code following the try/catch block. The finally block will execute whether or not an exception is thrown. For example, if a method opens a file upon exit, then you will not want the code that closes the file to be bypassed by the exception-handling mechanism. This finally keyword is designed to address this contingency.

Q: What is UNICODE?

Ans: Unicode is used for internal representation of characters and strings and it uses 16 bits to represent each other.

Q: What is Garbage Collection and how to call it explicitly?

Ans: When an object is no longer referred to by any variable, java automatically reclaims memory used by that object. This is known as garbage collection.System.gc() method may be used to call it explicitly.

Q: What is finalize() method ?

Ans: finalize () method is used just before an object is destroyed and can be called just prior to garbage collection.

Q: What are Transient and Volatile Modifiers?

Ans: Transient: The transient modifier applies to variables only and it is not stored as part of its object's Persistent state. Transient variables are not serialized.Volatile: Volatile modifier applies to variables only and it tells the compiler that the variable modified by volatile can be changed unexpectedly by other parts of the program.

Q: What is method overloading and method overriding?

Ans: Method overloading: When a method in a class having the same method name with different arguments is said to be method overloading.

Method overriding : When a method in a class having the same method name with same arguments is said to be method overriding.

Q: What is difference between overloading and overriding?

Ans: a) In overloading, there is a relationship between methods available in the same class whereas in overriding, there is relationship between a superclass method and subclass method.

b) Overloading does not block inheritance from the superclass whereas overriding blocks inheritance from the superclass.

c) In overloading, separate methods share the same name whereas in overriding,subclass method replaces the superclass.

d) Overloading must have different method signatures whereas overriding must have same signature.

Q: What is meant by Inheritance and what are its advantages?

Ans: Inheritance is the process of inheriting all the features from a class. The advantages of inheritance are reusability of code and accessibility of variables and methods of the super class by subclasses.

Q: What is the difference between this() and super()?

Ans: this() can be used to invoke a constructor of the same class whereas super() can be used to invoke a super class constructor.

Q: What is the difference between superclass and subclass?

Ans: A super class is a class that is inherited whereas sub class is a classthat does the inheriting.

Q: What modifiers may be used with top-level class?

Ans: public, abstract and final can be used for top-level class.

Q: What are inner class and anonymous class?

Ans: Inner class : classes defined in other classes, including those defined in methods are called inner classes. An inner class can have any accessibility including private.Anonymous class : Anonymous class is a class defined inside a method without a name and is instantiated and declared in the same place and cannot have explicit constructors.