What is difference between JDK,JRE and JVM?

JDK (dev kit) –develop + compile + debug + execute + display

JRE (runtime environment) – execute + display (client-side)

JVM (virtual machine) – Converts source code into bytecode and bytecode into machine language so that it can be understood by the cpu.

What is JIT compiler?

JIT (just in time compiler)- Part of the JVM. Before JIT bytecode was converted with a method called interpretation. A line of bytecode is converted and immediately executed, then the next line was converted. System was inefficient because lines that were repeated (ie. Loops) had to be converted multiple times. JIT instead allocates these converted lines to memory. Improves runtime.

Also optimizes code to further improve runtime.

What is platform?

OS and underlying hardware

What is the main difference between Java platform and other platforms?

Java is platform independent. Code does not need to be ported to run on other operating systems because the client-side JVM (platform dependent) translates bytecode to the appropriate machine language.

What is a Runtime Environment?

Where the code runs. JVM, PC, web, Raspberry PI, text editor, etc.

in "public static void main(String args[])" what is args[] and how do you use it?

Parameter for optional arguments when running .class programs from the cmd. Example program:

**public** **class** **App** {

**public** **static** **void** **main**(**String**[] args) {

// **TODO** Auto-generated method stub

**for**(**String** **s**:args){

**System**.***out***.println(s);

}

}

}

6) What gives Java its 'write once and run anywhere' nature?

Jvm (platform specific) converts bytecode into appropriate machine language. No code porting required.

### 7) What is classloader?

### Loads classes into JVM. Always loads main method first. Throws ClassNotFoundException if class not found/couldn’t be loaded.

### Bootstrap classloader/primordial classloader – loads .jar files which contain java core classes

### Extensions classloader – loads classes from path directory. These classes are extensions of java core classes

### System classloader- loads classes from system classpath

### Hiearchical nature. Bootstrap->extensions->system

### 8) Is Empty .java file name a valid source file name?

### Yes. Was able to open empty .java file with intellij IDE. Note: eclipse displays emptyClassTest package as empty if .java file has no name.

### 9) Is delete,next,main,exit or null keyword in java?

### No. Unrelated note: exit is a method of the class System that shuts down the JVM

### 10) If I don't provide any arguments on the command line, then the String array of Main method will be empty or null?

### Empty, like an empty slot in which arguments were not placed.

### 11) What if I write static public void instead of public static void?

### No difference.

### 12) What is the default value of the local variables?

### No value, not automatically initialized. Instanced variables do get initialized. Default value is 0/false/null(string).

### 13) What is difference between object oriented programming language and object based programming language?

### Object-oriented contains three feature that object-based programming does not: encapsulation, inheritance, and polymorphism.

### 14) What will be the initial value of an object reference which is defined as an instance variable?

### See answer 12.

### 15) What is constructor?

### A method that allows arguments to be passed as soon as the object is created. The constructor must have the same name as the class.

### 16) What is the purpose of default constructor?

### No-argument constructor automatically generated if constructor is not manually defined. Calls super().

### 17) Does constructor return any value?

### No.

### 18)Is constructor inherited?

### A subclass constructor can call superclass constructors, but they’re not inherited.

### 19) Can you make a constructor final?

### No. Final methods are used to disable override functionality by other classes. Constructors can’t be overridden to begin with.

### 20) What is static variable?

### AKA class variables. Declared outside method, and as such usable for entire program.

### 21) What is static method?

### AKA class methods. Methods that can be invoked with the class name rather than the instance. More efficient with memory.

### 22) Why main method is static?

### Because it is called by the JVM first, so it must be able to be invoked directly with the class.

### 23) What is static block?

### A block of code encased in {} that is preceded by the static keyword. I’ts executed as soon as the class is loaded.

### 24) Can we execute a program without main() method?

### Possible through a static block, but after it executes a no main method error is thrown.

### 25) What if the static modifier is removed from the signature of the main method?

### Code will not run.

### 26) What is difference between static (class) method and instance method?

### Static method variables belong to the whole class.

### Instance method variables only belong to the object instance.

### 27) What is this in java?

### This.x assigns the value of a parameter to a field of the same name. this can also be used to refer to an object.

### 28)What is Inheritance?

### Subclasses inherit properties from superclasses.

### 29) Which class is the superclass for every class.

### Object.

### 30) Why multiple inheritance is not supported in java?

### To remove ambiguity. Workaround possible using interfaces.

### 31) What is composition?

### TODO

### 32) What is difference between aggregation and composition?

### TODO

### 33) Why Java does not support pointers?

### Because the JVM moves objects within the VM memory to optimize code. Because of this Java uses references instead which point directly to the object.

### 34) What is super in java?

### Super refers to the superclass.

### 35) Can you use this() and super() both in a constructor?

### No. Both are constructor calls. Constructor calls must always be the first statement.

### 36)What is object cloning?

### Using clone() method of Object class to create exact copy of an object. More efficient than using keywords.

### 37) What is method overloading?

### Feature that allows classes to have multiple methods of the same name if they have different argument lists.

### 38) Why method overloading is not possible by changing the return type in java?

### Return type is not sufficient for compiler to determine which method is which.

### 39) Can we overload main() method?

### Yes. But only public static void main(String[] args) will be used as the starting method.

### 40) What is method overriding:

### Feature that allows subclass to override a method of a superclass.

### 41) Can we override static method?

### 42) Why we cannot override static method?

### 43) Can we override the overloaded method?

### 44) Difference between method Overloading and Overriding.

### 45) Can you have virtual functions in Java?

### 46) What is covariant return type?

### 47) What is final variable?

### 48) What is final method?

### 49) What is final class?

### 50) What is blank final variable?

### 51) Can we intialize blank final variable?

### 52) Can you declare the main method as final?