Q1>what is the difference between compiler and interpreter?

Ans == Compiler is a software which takes the source code(HLL) as a input and Generates MLL as output, To convert the HLL code into MLL code compiler will scans the HLL codes only once. Compiler will speed up the process,and compiler will identify all problems in one scan.

Interpreter is a software which takes the source code(HLL) as a input and generates MLL code as output, To convert the HLL code into MLL code interpreter will scans the HLL codes multiple times, interpreter will slow down the process, And interpreter scans line by line so its take more time to identify the problems.

Q2> What is the difference between JDK,JRE and JVM?

Ans== JDK stands for java development Kit.JDK is software development package that provide the tools necessary to develop,compile and debug java applications.it includes the java compiler (javac),which converts the source code (.java files) into bytecode(.class files).

JRE stands for java runtime environment. Its allow you to run the java code on your computer.The JRE includes the JVM(java virtual machine),class libraries,and other files needed to execute java bytecode.when you install JRE on your computer,you can run java application but you cannot develop orcompile java code.

JVM stand for java virtual machine.jvm is responsible for executing java bytecode .The jcm is a virtualized environment that allow java applications to be platform independent.jvm translate java byte code into machine code that can be executed directly by the operating system.

Q3> How many types of memory areas are allocated by JVM?

Ans== HEAP MEMORY the heap memory is the most significant memory area in the JVM andis usedto store object and instances of classes.when you create an object inyourjava programs using ‘new’ keyword,it is allocated memory in the heap.

STACK MEMORY the stack memory is used to store local variables and method call frames.when a method is invoked ,a new frame is pushed onto the stack,containing local variables and other method-specific data.when the methods complete , the frame is popped off the stack.

METHOD AREA method area is used to store information about classes,methods ,static variables.

Q4> What is JIT compiler?

ANS == JIT stands for "Just-In-Time" compiler.The JIT compiler is a key component of the java virtual machine and is responsible for converting java bytecode,which is platform-independent and generated by the java compiler,into native machine code that can be executed directly by the host operating system and proceser.

Q5>What are the various access specifier in java?

ANS== The various access specifier in java are:

1.public

2.private

3.protected

4.default

Q6> What is a compiler in java?

ANS == In java compiler is a software tool responsible for translating java source code into java bytecode. Java source codeis written bye developer in plain text and contains the instructions and logic of a java programs.

Q7>**Explain the types of variables in java.**

ANS == INSTANCE Variable (non-static variable): Instance variable are also known as non-statis variables or member variable,instance variables declarec inside a class but outside any method,constructor,or block.each instance of the class(object) has its own copy of instance variables.instabce variables are accessible by all methods of the class and can be accessed using an instance of the class.their values are specific to each object of the class.

STATIC VARIABLES(CLASS VARIABLES): static variables are also known as class variables.static variables are declared with the 'static' keyword within a class,but outside any method or constructor.unlike instance variables,there is only one copy of each static variables shared by all instance of the class.

Static variables are initialized to their default values when the class is loaded.

LOCAL VARIABLES: local variables declared within a method, constructor,or block(including loop and conditional blocks).local variables have a limited scope, meaning they are only accessible within the block in which they are declared.local variables are stored on the stack and are created when the methods is invoked and destroyed when the method exits.

Q8> What are the datatypes in java?

ANS == Primitive data types: byte,short,int,long,float,double,char,Boolean.

Non-Primitive data types: Arrays, intefaces,classes,string.

Q9> What are the identifier in java?

ANS == identifier is a name in java programs. Identifier can be classname,variablename, labekname etc.

Q10> explain the architecture of java?

ANS == Java Development Kit(JDK): == JDK stands for java development Kit.JDK is software development package that provide the tools necessary to develop,compile and debug java applications.it includes the java compiler (javac),which converts the source code (.java files) into bytecode(.class files).

Java Runtime Environment : JRE stands for java runtime environment. Its allow you to run the java code on your computer.The JRE includes the JVM(java virtual machine),class libraries,and other files needed to execute java bytecode.when you install JRE on your computer,you can run java application but you cannot develop orcompile java code.

Java Virtual Machine: JVM stand for java virtual machine.jvm is responsible for executing java bytecode .The jcm is a virtualized environment that allow java

applications to be platform independent.jvm translate java byte code into machine code that can be executed directly by the operating system.

Java Class Libraries : java comes with a just vast set of standard class libraries that provide reusable classes,interfaces,and methods for various common tasks.

These libraries are organized into package and cover areas such as I/O,networking,data structures, GUI(graphical user interface).

Execution of java Applications: the process of executing a java application involves compiling the java source code ('.java'files) into java bytecode ('.class'files) using the 'javac' compiler.the generated byte code is platform-independent and can be executed on any system with compatible JVM.

Overall,the architecture of java is designed to provide a secure,portable,and robust platform for developing and executing application across various device and operating systems.The use of bytecode and the jvm enables the "write once,run anywhere"(WORA)capability that makes java a popular choice for a wide range of applications,from small embedded device tp large enterprise systems.