

→ Assignment : →

Vedantikattukettu, west road • 291  
e bus centre + Tulu market is 1.5 km  
west 296900 mukkudil town, west 904

Q1) JDK in Java is a cross-platform software development environment that offers a collection of tools and libraries necessary for developing Java-based

applications using an IDE or editor.

\* Contents of JDK

- ① Java Runtime Environment
- ② An interpreter
- ③ A compiler
- ④ An Archiver

Q2)

JDK, JVM, & JRE are all programming language components and they serve different purposes.

JDK :- It is a development that includes the JRE, tools for developing Java application

JVM :- Java virtual machine is the foundation of Java programming and is responsible for ensuring that Java source code is platform-agnostic.

JRE → The Java runtime environment is a set of software that includes the JVM and libraries needed to run Java programs. It runs on the host machine through Java virtual machine.

(3) JVM is Java Virtual Machine that enables as well as programs written in other languages that are also compiled to Java bytecode. JVM acts as an interpreter between the Java programming language and the underlying hardware.

(4)

JVM manages memory for Java application by allocating and deallocation spaces for objects.

JVM uses two main memory types

Stack and Heap.

① Stack → Used for local variables and parameters.

② Heap → Used for dynamic memory such as when creating objects or when request is made.

introducing marking of stack

(Q5) JIT compiler is a component of JVM that compiles bytecode to machine code at runtime to improve the performance of Java application. (in slideshare)

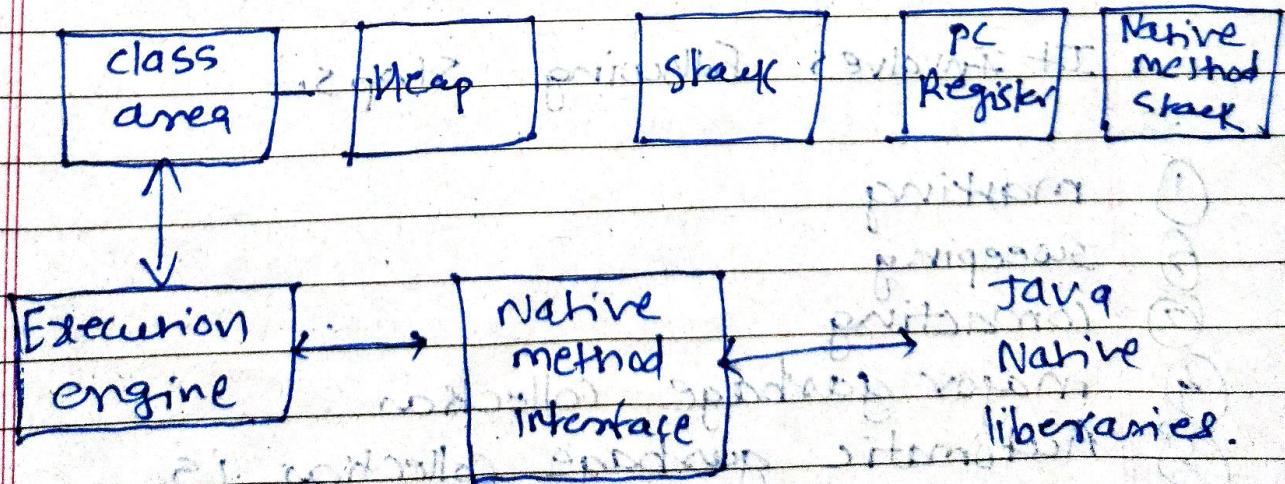
Bytecode - It is a computer object code that performs - natural and can be interpreted by a JVM easily.

An interpreter converts bytecode into binary machine code so it can be read by a computer hardware processor.

(Q6)

Java runtime system class loader.

• byte is stored & executed on stack.



(Q7) It achieves through compiling code into a universal bytecode that runs on any system which is comparable from one language since it

- ① Compilation
- ② Execution
- ③ Platform independence

(Q8) Class loaders are responsible for locating libraries, reading their contents and loading the classes contained within the libraries.

Garbage collection in Java is the automated process of deleting code that's no longer needed or used.

It involves following steps.

- ① Marking
- ② Sweeping
- ③ Compacting
- ④ Major garbage collection
- ⑤ Automatic garbage collection is popular it's easier than manual memory management which can slow down application development.

(Q.9) Java has four access modifiers:

① private :- most restrictive access modifier allowing only code within same class to access a member or variable.

② protected :- Allows access to a member method or attribute within same package or by subclass in different package.

③ Default :- Also known as package private . this access modifier allows access within the same package.

④ public :- the least restrictive access modifier allowing access to a member from anywhere in the application.

(Q.10)

yes an overridden method can have a different access modifier but it cannot lower the access scope.

yes protected method of Superclass can be overridden by a Subclass

(12)

in package	Protected	can't be defined
Same class	Yes	Yes
at same level within class file private		
Same package	Yes	
Subclass		
members of same class -; visibility	Yes	
Different package		
same package as bottom		
Subclass		
visibility same as package		
different package		No
non-subclass	No	
example: package A has class B with visibility		
visibility same with package A		

(13)

- Yes we can declare a class as private but these classes can be only inner or nested classes.
- We can't top-level class as private because it would be completely useless as nothing would have access to it.

(14)

- No, we cannot declare a top-level class as private or protected. It can be either public or default. If it does not have a modifier, it is supposed to have default access.

PROB NO.	
DATE	/ /

15)

the methods or data members declared as private are accessible only within the class in which they are declared. any other class of the same package will not be able to access these members making variable private protects its value when code runs.

16)

- private restricts access to the elements only within the class they are declared
- protected allows access within the same package or in Subclasses. which might be different package
- lastly the default access limits the visibility to classes within the same package.