PAGE No.
DATE / /

Assignment 3

* Interview Questions

1. Explain the components of the JDK.

→ JDK (Java development kit) is a software development environment which is used to develop java applications & applets. It contains JRE + development tools

JDK consist of

1. JVM
2. Interpreter / loader (Java)
3. Compiler (Javac)
4. archieve (Jar)
5. documentations (Javadoc)

So, Javac, java, javap, jstack, jdb, etc

Java JDK = Java Dev tools + JAVA DOCS + rt.jar + JVM

or

Java JDK = Java Dev tools + Java docs + ~~JRE~~ JRE (rt.jar + JVM)

API lib

2. Differentiate between JDK, JVM & JRE

→ JDK :- • It is a software development environment
• consist JRE + development tools + docs.

~~JVM~~ JRE :- • It is a set of software tools used for developing java applications.
• Provide runtime env.
• consist of set of libraries + other JVM files & rt.jar & Jre.

PAGE No.
DATE / /

~~JRE~~:-

JVM:- • It provides env for byte code to execute.
• JVM's main task
1. loads code
2. verifies code
3. Execute code
4. Provide runtime envi

Q3] What is the role of the JVM in ~~dad~~ java ? How does the JVM execute Java code?

→ JVM :- • provides runtime env for bytecode execution.
• It is platform dependent.

Java file → compiler → Java class file → JVM → execution.
(byte code)

JVM converts bytecode by
1. loads code ← loads class files.
2. Verifies code
3. Executes code
4. Provide runtime env.

Q5] JIT compiler & its role in JVM?

→ - It is used to improve performance
- JIT compiles parts of the code that have similar functionality at same time & hence reduces the amount of time needed for compilation. Here 'compiler' refers to a translation from the instruction set of JVM to instruction set of CPU.

PAGE No.
DATE / /

Q.6] How does Jar archieve platform independece ~~JVM~~?

→ JAR (Java archieve) → platform - independent file formate that aggregates many files into one.
- The jar file contains java ~~source~~ support code i.e which are in java class files are present so they are in byte code which makes it platform independent as long as ~~it~~ the system on which we have to run the java program contains JRE to run it.

Q8] What is the significance of the class loader in java? What is the process of garbage collection in java?

→ In java, class loader & garbage collector are imp part of JVM.

Significance of class loader:-
- Dynamic loading:- It means classes are loaded on per there requirement/needed.
- Class isolation:- Provide isolation between diff classes so multiple versions can coexist.
- loading from various sources:-

Process of garbage collection.

Java app → (compiler) Java class file → (JVM) execute

Obj → (stored) heap area → (Garbage collector) free up space by removing code no longer needed.

- Modifiers are used to set the access level for classes, attributes, methods & constructors.

1. Access modifiers :-
   - public :- That makes it visible for other classes.
   - private :- the code will be visible within the declared class
   - default :- the code will be visible to the package
   - protected :- The code will be accessed by same package & subclass.

2. Non - Access modifiers :-
   - final :- the classe cannot be inherited
   - abstract :- the class cannot be used to create obj
   - static :- Attributes & classes belongs to class rather then obj.
   - transient :- Attributes & methods are skipped when serializing obj containing them.
   - synchronized :- 1 thread at a time
   - volatile :- not cached read from main-memory.

PAGE No.
DATE / /

Q9] What are the four access modifiers in Java, how do they differ from each other?

→ Java modifiers are used to set access levels for classes, variables, methods & constructors.
4 types
1. Public :- Accessible from any class in the applica
2. Private :- Accessible only within the class they are declared.
3. Protected :- Accessible within the same package or in ~~same~~ subclass even if they are in diff packa
4. Default :- No modifier is specified, so accessibili is limited to classes within same package

Q10] Can you override a method with a diff access modifier? For example can a protected method i a superclass be overridden with private method in subclass? explain?

→ In java an overriding is possible but only to allow more access. so protected can be made public but not private.

Q12] What is the difference between protected & default (package - private) access?

→ - Protected access is more than default access.
- protected allow access to child classes even when they're outside the package.

PAGE No.
DATE / /

Q13] Is it possible to make a class private in Java? if yes, where can it be done, what are the limitations?

→ - No, you can not declare top most or main class with private access modifier.
- but you can make nested classes & then declare it as private.

Q14] can a top-level classe in java be declared as protected or private? Why or Why not?

→ No. we cannot declare top-level class as private if we do it will show private modifier not allowed because the ~~top~~ that classes cannot be accessed by any other class which will render it useless.

Q15] What happens If you declare a variable or method as private ~~etc~~ in a class & try to access it from another class within the same package?

→ Private class cannot be accessed by anyother class. even when they are in same package.

Q16] Explain the concept of "package-private" or "default" access. How does it affect the visibility of class members.

→ default access means it can be accessed by the classes within the same package. It should not affect visibility of class member.