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Q.1 :→ What is difference between JDK, JRE and JVM ?

→ ① JDK (Java development Kit) :→ JDK is a software development environment which is used to develop Java application and applets. It contains JRE + development tools. The JDK contains a private java virtual machine and few other resources such as interpreter/loader (java), compiler (javac), an archiver (jar)

② JRE (Java Runtime Environment) :→ JRE is an acronym for Java RTE. The Java Runtime Environment is a set of software tools which are used for developing java applications. It is used to provide the runtime environment. It is the implementation of java.

③ JVM (Java Virtual Machine) :→ It is an abstract ~~data~~ machine. It is called a virtual machine because it doesn't physically exists, it is a specification that provide a runtime environment in which java byte code can be executed.

JVM perform the following task :

- Loads code
- verifies code
- Executes code
- provide runtime environment

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Q.2:→ What is JIT compiler?

Ans:→ The JIT compiler help improve the performance of java program by calling the bytecode into native machine code at run time. The JIT compiler is enable by default. When a method has been compiled, the JVM calls the compiler code of that method directly instead of ~~the~~ interpreting it. JIT compilation is a way of executing computer code that involves compilation during execution of a program rather than before execution.

Q.3→ What is class loader?

→ ① Java ClassLoader is an abstract class. It belongs to a java.lang package. ~~It loads~~

② It loads class from different resources. Java classloader is used to load the classes at run time. In other words, JVM performs the linking process at runtime.

③ classes are loaded into the JVM according to need. If a loaded class depends on another class, that class is loaded as well.

Q.4:→ Explain various memory logical partitions?

→ ① Fixed Partitioning:→ The main memory is divided into several fixed-sized partitions in a fixed partition memory management scheme or static partitioning. These

partitions can be of same size or different sizes. Each partitions can hold a single process The number of partitions determines the degree of multiprogramming, i.e., the maximum number of processes in memory. These partitions are made at the time of system generation and remain fixed after that.

② Dynamic Partitioning :→ The dynamic partitioning was designed to overcome the problems of a fixed partitioning scheme. In a dynamic partitioning scheme, each process occupies only as much memory as they require when loaded for processing. Requested processes are allocated memory until the entire physical memory is exhausted or the remaining space is insufficient to hold the requesting process. In this scheme the partitions used are of variable size, and number of partitions is not defined at system generation time.

Q.5 :→ What gives java its "Write once and run anywhere nature"?

→ Java code is compiled by the compiler and converted into bytecode. This bytecode is a platform-independent code because it can be run on multiple platforms, i.e., Write Once and Run Anywhere (WORA).

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Q.6 :→ Explain History of Java. Who invented Java?

→ ① The history of Java ~~its~~ starts with Green Team. Java team members (~~initi~~ also known as Green Team), initiated this project to develop a language for digital devices such as set-top boxes, television, etc. However, it was best suited for internet programming. Later, Java technology was incorporated by Netscape.

② Java was developed by James Gosling, who is knows as the father of Java, in 1995. James Gosling and his team members started the project in the early 90's.

Q.7 :→ What was original name of Java? Why it was renamed?

→ Before Java, its name was Oak. Since, Oak was already a registered company, so James Gosling and his team changed the name from Oak to Java

Q.8 :→ List Features of Java.

→ A list of Features of Java is as given below:-

1) Simple
2) Object-Oriented
3) Platform Independent
4) Secured
5) Robust
6) Portable
7) Architecture neutral
8) Interpreted
9) High performance
10) Multithreaded
11) Distributed
12) Dynamic.

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Q.9 :→ List Various Datatypes in Java.

→ There are two types of datatypes in java :

① Primitive data types :- The primitive data -types includes - ① boolean ⑤ int
② char ⑥ long
③ byte ⑦ Float
④ short ⑧ double

② Non-Primitive data types :→ The non-primitive datatypes includes - ① classes
② interfaces
③ arrays.

Q.10 :→ What is difference between
System.out.print
System.out.println
System.err.print

→ ① system.out.print :→ The print() method displays the output on the console and retains the cursor in the same line.

② System.out.println :→ The println() method also displays the result on the consale but moves the cursor to the next line.

③ System.err.print :→ Normally System.err is used to print an error messages, which increases the readability of the programmer.

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Q.11:→ How is Java platform independent?

→ ① Java is platform independent because it is different from other languages like C, C++, etc. which are compiled into platform specific machines while Java is write once, run anywhere language.

② The Java platform differs from most other platform in sense that it is software based platform that runs on top of other hardware -based platform.

③ Java code can be executed on multiple platforms like, Windows, Linux, Mac/OS, etc.

④ Java code is compiled by compiler and converted into bytecode. This bytecode is a platform-independent code because it can be run on multiple platform.

Q.12:→ What is bytecode? How is it different from machine code?

→ ① A bytecode acts as an intermediate code present between a machine code and a source code. A bytecode is basically a low-level code that results from the compilation of source code that might be present in a high-level language. A virtual machine such as JVM (Java Virtual Machine) processes a byte code.

② The main difference between the machine code and the bytecode is that the machine code

- is a set of instructions in machine language or binary which can be directly executed by the CPU. While the bytecode is a non-runnable code generated by compiling a source code that relies on an interpreter to get executed

Q.13 :→ What is difference between Jar file and the Runnable Jar file.

→ ① Jar file is the combination of compiled java classes. While runnable jar file is also the combination of compiled java classes with Main class.

② The difference between Jar file and Runnable Jar file is that, ~~while~~ Jar file is a java application which requires a command line to run, while a runnable Jar file can be directly executed by double clicking it.

Q.14 :→ What is difference between Runnable jar file and exe file?

→ ① The Runnable jar file is the combination of compiled java classes with the Main class While exe file is a windows extension for directly executable code mostly used by installers or programs that do not need to be installed

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Q.15:→ How is C platform dependent language?

→ ① In case of C language, the compiler generates an .exe file which is OS dependent. When we try to run this .exe file on another OS it does not run, since it is OS dependent and hence is not compatible with the other OS.

② Whenever we install C, compiler + Library will be installed in the system. The Windows compiler will work for Windows operating system only and MAC compiler will work only for MAC operating system. Thus, C is platform depedent

Q.16:→ What is difference between path and class path.

→

PATH	CLASSPATH
① PATH is an environment variable	① CLASSPATH is also an environment variable.
② It is used by the operating system to find the executable files (.exe).	② It is used by Application classLoader to locate the .class file.
③ You are required to include the directory which contains .exe files.	③ You are required to include all the directories which contain .class and JAR files
④ PATH environment variable once set, cannot be overriden.	④ The CLASSPATH environment variable can be overiden by using the command line option -cp or -CLASSPATH to both javac and java command

Shrikrupa