Java With Bhuvi

Que 01 : What Is Programming ?

- Programming is simply creating a set of instruction for a computer to perform a specific task.
- Programming can be done using variety of computer languages like java , C++ etc.

Que 02 : What Is Category of Programming Language ?

- **Machine Level Language**

  It is the Low-Level language made up of binary numbers or Binary Bits it can help computer to understand the Human code language. It is the sequence of 0s and 1s . It also known as machine code or object code.

- **Assembly Language**

  Assembly Language is used to communicate Directly with computer hardware .Which consist Of binary character and assembly language is Expressed in human readable form .

- **High Level Language**

  A High-Level Language that is designed to be Easily understood and written by Human.
  It refers to the programming language that allow used to symbolic character and symbolic name .

Que 03 : What Is Compiler and Interpreter?

- **Compiler:**
  i. A compiler is a program that translates the entire source code of a high-level language program into machine code (binary code) or an intermediate representation known as bytecode.
  ii. Once the source code is compiled, the resulting machine code or bytecode can be executed directly by the computer's processor without the need for further translation.

iii. Compiled languages typically have better performance because the code is optimized during compilation.
iv. Examples of languages that use compilers include C, C++, and Rust.

- **Interpreter:**
  i. An interpreter is a program that reads and executes the source code of a high-level language program line by line, translating and executing each line as it is encountered.
  ii. The interpreter translates the source code into machine code or intermediate code on-the-fly, without producing a separate executable file.
  iii. Interpreted languages typically have slower performance compared to compiled languages because the code is translated and executed at runtime.

Java is compiler as well as interpreted language.

Que 04 : Types of Programming Paradigms?

- **Procedural**
- **Functional**
- **Object Oriented**

Que 05 : Introduction to java Programming ?

Java is a general-purpose programming language created for developers by James Goslings at sun microsystem and then acquired by oracle Corporation. Java is platform independent language it means java code return on one platform can successfully run on another platform. Java programming works on the object-oriented approaching of programming language. The Java programming is used to create desktop and mobile application.

Que 06 : What is the feature of Java Programming ?

1) Object Oriented programming language

I. It is Object Oriented Programming language because its concept based on objects and classes.

II. When we have any complex problem then we want this complex problem into smaller set of code so we prefer this concept.
III. It Helps java code more understandable and reusable.

2) Java Is Platform Independent :

Java code written on one platform can successfully run on other platform without any modification.

3) Simple And Secure :

I. Java is design to be easy to learn
II. Java Does not complex concept like pointer, operator, overloading, and explicit memory allocation.

4) Large Standard Library

Que 07 : What is JVM ?

JVM stands for Java Virtual Machine. It is an abstract computing machine that provides the runtime environment for executing Java bytecode. Here are some key points about JVM:

1 **Platform Independence:** JVM is platform-independent, meaning that it can run Java bytecode on any system that has a JVM implementation installed, regardless of the underlying hardware or operating system.
2 **Execution of Bytecode:** JVM executes Java bytecode, which is the compiled form of Java source code. The bytecode is generated by the Java compiler and saved in .class files.
3 **Interpretation and Just-In-Time (JIT) Compilation:** JVM can interpret bytecode or use a Just-In-Time (JIT) compiler to translate bytecode into native machine code for improved performance. The JIT compiler identifies frequently executed bytecode and compiles it into native machine code, optimizing performance.
4 **Memory Management:** JVM manages memory allocation and deallocation, including garbage collection, which automatically deallocates memory that is no longer in use by the program.

5 **Security:** JVM provides security features such as bytecode verification, which ensures that bytecode does not violate Java's security restrictions before execution, thus preventing malicious code from causing harm.

Que 08 : What is JDK ?

The JDK is a collection of 'software tools' that you can use for developing Java applications. You can set up the JDK in your development environment by downloading and installing it. Select the JDK software version that matches the Java version you want to use.