Q-1: What is Java Programming language?

Ans: Java is a popular programming language used to create different types of applications, such as websites, mobile apps and games.

Think of it as a set of instructions that tells a computer what to do.

Q-2: Why will we use Java?

Ans: There are several reasons why someone might choose to use Java for programming:

(1) Platform Independence: Java runs on any device that has the Java Virtual Machine (JVM). This means anyone can write code and run it on Windows, Mac, Linux or mobile devices.

(2) Object-Oriented Programming (OOP): Java follows OOP principles, making code organized, reusable and easier to manage

③ Robust and Secure: Java has strong security features and extensive libraries that help to create reliable and secure applications.

④ Performance: Java offers good performance with Just In Time compilation and efficient garbage collection.

⑤ Multi threading support: Java allows running multiple tasks simultaneously, making it ideal for high performance applications

⑥ Rich Libraries and Frameworks: Java has many ready-made libraries (e.g. JavafX for GUI, Spring for web apps) making development faster and easier.

Q-2: What is the history of Java?

Ans:

1991: Java was created by James Gosling at Sun Microsystems. It was called Oak.

1995: Renamed Java and officialy released with slogan "Write Once, Run Anywhere."

1999: Java was divided into three versions:

(i) J2SE (for desktop apps)

(ii) J2EE (for web apps)

(iii) J2ME (for mobile apps)

2009: Oracle bought Sun Microsystems and took over Java

2017 & beyond: Java started getting updates every six months, improving speed, security and feautures.

Q-4: What is JDK and JVM ?

Ans:

JDK → (Java Development Kit) : Used for writing and creating Java Programs

→ Includes JVM, JRE and a compiler

→ Needed by developers to write code.

JVM: (Java Virtual Machine): Runs Java Programs on any device.

→ Converts Java bytecode into machine code.

→ Makes Java platform-independent (works on Windows, Mac, Linux).

JDK = Used for coding

JVM = Used for running programs

Q-5: How does JVM work?

Ans:

Step 1: Write Java code in a name.java file

Step 2: Compile code

→ The Java compiler converts the code into bytecod (.class) file.

Step-3: JVM executes Bytecode

→ JVM (Java Virtual Machine) reads the bytecode and converts it into machine code that your computer understands.

Step-4: Program Runs

→ The machine code is executed, and you see the output.

→ JVM makes Java "Write Once, Run Anywhere" because it works on any operating system!