1. **What is a programming language?**

A programming language is a coded language that allows programmers to communicate with computers and write them instructions.

1. **Explain the difference between a compiled language and an interpreted language.**

Compiled language translates the source code into machine language before providing an output. Interpreted language skips the machine language translation and jumps straight to an output. Compiled language runs faster than interpreted language because it translates the code as a whole and will stop if it finds an error. Whereas the interpreter takes longer, since it translates code line by line.

1. **Explain the difference between ‘General-Purpose Programming Language’, Object-Oriented Programming Language’, and ‘Functional Programming Language’.**

General-Purpose Programming Language is used for writing software in a wide variety of applications. OOP is a programming category that is based on “objects” and is designed to have programs that interact with one another. OOP languages are typically diverse. Functional Programming Language focuses on the computational aspect and avoids changing-state and mutable data.

1. **Select 5 programming languages of your choice. Explain the purpose of creating that language. Also enumerate a few applications of that language (write a paragraph on each language).**
2. Python is a general-purpose programming language. It is based on client-server architecture. It was created in 1991 by a Dutch programmer named Guido van Rossum. Since Python is a general-purpose language, its applications can be found in various software programs such as YouTube, Reddit, Yahoo Maps, Google etc. Another great thing about Python is that it is an open-source application and is accessible to all. Python can be applied in website development, writing scripts and best of all, data science, machine learning and scientific computing applications.
3. Java is a general-purpose programming language that could virtually run on any computer. Java was developed by James Gosling of Sun Microsystems to work in heavy network environment. Due to its versatility, Java is applied to a wide variety of programs such as web developments, mobile applications, GUI applications, and more. Many devices such as mobile SIM cards, Blu-Ray discs, utility meters all use embedded Java technology. The Java ecosystem also contains many Java web servers and application servers.
4. C is another great, versatile general-purpose computer programming language. It was developed in 1972 by Dennis Ritchie. It contains C compilers from various vendors for computer structures and operation systems. The language C is responsible for creating computer applications as well as creating compiler for different languages which can take input from other language and convert it into lower level machine dependent language. Much like other types of languages, C also has its applications in website and GUI developments.
5. MATLAB is a special programming language used specifically for technical and scientific computing. It integrates computing, visualization and programming into an easy, user-friendly environment. MATLAB uses typically include: mathematical algorithms computation and development, mathematical modeling, simulation as well as data analysis and visualization. In STEM, MATLAB is the top choice for high-level research, development and analysis. MATLAB is different from other languages because it provides two- and three-dimensional data visualizations, image processing and animation.
6. R is an open-source, special programming language that is used for statistical operations and is a command-line given program. R is considered the most popular analytic tool and is used heavily in the world of data science. Its applications can be found in finance, banking, e-commerce, and social media. R is also used for exploratory data analysis, of both discrete and continuous statistical operations.

**5. Install Python on your computer using the Anaconda distribution. Write the “Hello World” Python program.**