**Q.1 How does a computer program work ?**

Ans: A computer program is a collection of instructions that can be executed by a computer to perform a specific task. A computer program is usually written by a computer programmer in a programming language.

From the program in its human-readable form of source code, a compiler or assembler can derive machine code—a form consisting of instructions that the computer can directly execute. Alternatively, a computer program may be executed with the aid of an interpreter. A collection of computer programs, libraries, and related data are referred to as software. Computer programs may be categorized along functional lines, such as application software and system software. The underlying method used for some calculation or manipulation is known as an algorithm.

**Q.2 Can we compare between natural language and programming language ?**

Ans: Natural language does not "strongly distinguish between syntax and semantics". Natural and programming languages are compositional in very different ways. While you can define all the compositional rules in a programming language, a natural language is much freer - which is what makes language change possible

**Q.3 Explain compilation and interpretation ?**

Ans: In a compiled language, the target machine directly translates the program. In an interpreted language, the source code is not directly translated by the target machine. Instead, a different program, aka the interpreter, reads and executes the code.

Okay… but what does that actually mean?

Imagine you have a hummus recipe that you want to make, but it's written in ancient Greek. There are two ways you, a non-ancient-Greek speaker, could follow its directions.

The first is if someone had already translated it into English for you. You (and anyone else who can speak English) could read the English version of the recipe and make hummus. Think of this translated recipe as the compiled version.

The second way is if you have a friend who knows ancient Greek. When you're ready to make hummus, your friend sits next to you and translates the recipe into English as you go, line by line. In this case, your friend is the interpreter for the interpreted version of the recipe.

**Q.4 What does interpreter actually do ?**

Ans: An interpreter is a computer program that directly executes instructions written in a programming or scripting language, without requiring them previously to have been compiled into a machine language program. An interpreter generally uses one of the following strategies for program execution:

Parse the source code and perform its behavior directly;

Translate source code into some efficient intermediate representation and immediately execute this;

Explicitly execute stored precompiled code made by a compiler which is part of the interpreter system.

**Q.5 What is python ?**

Ans: Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

Q.6 What are features in python ?

Ans:1. Easy to code

2. Free and Open Source  
3. Object-Oriented Language  
4. GUI Programming Support

5. High-Level Language  
6. Extensible feature  
7. Python is Portable language  
8. Python is Integrated language  
9. Interpreted Language  
10. Large Standard Library  
11. Dynamically Typed Language

**Q.7 What are characteristics of python ?**

Ans: Functional Programming From “C”

Object Oriented Programming From “C++”

Scripting Language Features From “Pearl”& “Shell”

Modular Programming Features From “Modula-3”

Syntax from “C” & “ABC” Language.

**Q.What are the flavours of python ?**

Ans: **a. CPython**

This is the most widely accepted implementation of Python. It is written in the language C, and is an interpreter.

**b. Jython**

Jython is a Python implementation written in Java. A Jython program can import any Java class.It compiles to Java bytecode.

**c. IronPython**

IronPython is implemented in C#. It can function as an extensibility layer to application frameworks written in a .NET language.

**d. Brython**

Brython stands for Browser Python. It is an implementation of Python that runs in the browser.

**e. RubyPython**

It acts as a bridge between the Python and Ruby interpreters. It marshals data between Python and Ruby virtual machines.

**f. PyPy**

It is interesting to know that PyPy is Python implemented in Python. This makes it faster and easier to experiment with. However, the standard implementation is CPython.

**g. MicroPython**

This is an implementation of Python meant to run on a microcontroller. It uses a MicroPython board that runs MicroPython on bare metal.