2.**Define the following terms as used in C Programming**;

(a)Compiler; This is a special program that translates a programming language's source code into machine code, bytecode or another programming language.

(b)Source code; Programming statements that are created by a programmer with a text editor or a visual programming tool and then saved in a file

(c)Object code; The output, a compiled file, which is produced when the source code is compiled with a C compiler

(d)Linkers; Important utility programs that take the object files, produced by the assembler and compiler and other code to join them.

3. **Explain the compilation process of a C program**;

(a) Preprocessing; The preprocessor (part of the compiler) handles directives like #include and replaces them with the content of the specific header file e.g. *stdio.h*

(b) Compilation; The compiler translates the preprocessed code into assembly code or the object code which is an intermediate form

(c) Assembly; The person assembling the program converts the object code into machine code which is specific to the target project.

(d) Linking; the linker combines the machine code generated for the program with the machine code for the standard library functions like *printf* from *stdio.h* in this case and creates the final executable file.

4. **Explain the differences between a compiler and an interpreter**

|  |  |
| --- | --- |
| Compiler | Interpreter |
| 1. Translates code from high level programming like Python into machine code before the program runs. | 1. Translates code written in a high-level programming language into machine code line by line as the code runs. |
| 2.Runs comparatively faster since it translates an entire program at once. | 2. Runs comparatively slower since it translates the program line by line. |
| 3. It stores the machine language on a disk in the form of machine code. | 3. It doesn’t save the machine language at all. |
| 4. It works on the basis of the language-translation linking-loading model. | 4.It works on the basis of the interpretation model. |
| 5.It works best for the production environment. | 5.It works best for the programming and development environments. |
| 6.The translator displays all the errors after compiling together at the same time. | 6.it displays the errors of every single line one by one. |
| 7.Are very difficult to implement because they can’t predict everything that happens during the turn time. | 7.The interpreted language supports Dynamic Typing. |

5. **List all the main categories of operators available in C programming;**

(a)Arithmetic operators; +, -, /, %, \*

(b)Relational operators; <, >, <=, >=, =

(c)Logical operators; &&, ||

(d)Bitwise operators; &, |, ^

(e)Increment operators; ++

(f)Decrement operators; --

(g)Assignment operators; =