2. **Define the following terms as used in C programming**

1. Compiler: Is a program that translates high level language instructions into machine code.
2. Source code: It is a code written by the programmer.
3. Object code: It is a compiled code.

Linkers: Is a computer program that takes one or more object files generated by a compiler & combines them into a single executable file.

3. a) **Using an example write a program to add two numbers and explain the compilation process of a C program.**

#include <stdio.h>

Int main ()

{

int n, sum=0, c, value;

printf(“Enter the number of integers you want to add\n”);

scanf(“%d”,&n);

printf(“Enter%d integers\n”,n);

for(c= 1; c<=n;c++)

{

scanf(“%d”,&value);

sum=sum+value;

}

printf(“sum of entered integers=%d\n”,sum);

return 0;

}

The compilation process involves translating human-readable code into machine-readable code and checking the syntax and semantics of the code to identify any syntax problems or warning in the C program.

b) **List all the main categories of operators available in C programming.**

* Arithmetic operators
* Relational operators
* Logical operators
* Bitwise operators
* Assignment operators
* Conditional operators
* Misc operators

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

***Interpreter***

1. Translates & executes each statement of the source code one at a time.
2. Interpreted object codes takes less memory compared to compiled programs.
3. Syntax errors are reported & corrected.
4. Translates the program each time it is needed for execution; it’s slower than compiling.
5. It can relate error messages to the source program that’s available to the interpreter making debugging of a program easier.

***Compiler***

1. Translates all the source code statements at once as a unit into their corresponding object codes before the computer can execute them.
2. Compiled programs require more memory as their object files are larger.
3. Syntax errors are reported and corrected after the source has been translated to it’s object code equivalent.
4. Compiled programs can be saved on a storage media and run when required; executes faster than interpreted programs.
5. Once the source program has been translated its no longer available to the compiler so error messages are usually less meaningful.