1) What is c language?

C is a high-level, structured and general-purpose programming language developed by Dennis Ritchie in 1972 at Bell Laboratories. It is widely used for system programming, especially for writing operating systems and compilers, due to its efficiency and control over hardware.

2) Applications of c

- C is used to build the core of operating systems like Windows, Linux, and macOS.
- It programs the microcontrollers in embedded systems, from cars to smart appliances.
- C serves as the foundation for compilers of other programming languages like Python and C++.
- It writes high-performance database engines such as MySQL and PostgreSQL.
- C develops essential system utilities and libraries that other software depends on.
- It creates the core software for networking equipment like routers and switches.
- C is used in game development for engine programming and graphics rendering.
- It is fundamental in scientific computing for simulations and numerical analysis.

3) What is variable?

A variable is a named storage location in computer memory that holds data. Its value can be changed during program execution. Variables allow you to store and manipulate different types of information, like numbers or text.

4) What are different data types in c?

In C, data types are categorized as basic types like int, char, float, and double. Derived types include pointers, arrays, and structures. Enumeration types are defined using enum for named integer constants. The void type specifies an empty value set. Each type determines the size, layout, and operations permissible on the data.

Basic Types:

int - for integers (whole numbers)
char - for single characters
float - for decimal numbers
double - for more precise decimals

Derived Types:

Created from basic types
Includes arrays, pointers, structures, and unions

Enumeration Type:

Defined with enum keyword
Creates named integer constants
Example: enum days {MON, TUE, WED};

5) What is format specifier?

A format specifier is a special code used with functions like printf() and scanf() to specify the data type of a variable. It begins with a % symbol followed by a character. For example, %d is for integers and %f is for float values. They ensure proper reading and displaying of different data types. Essentially, they tell the computer how to interpret the variable's data.