① What is C Language?

⇒ C language is a general-purpose, structured, computer programming language used to develop system software, operating systems and applications.

→ Developed by "dennis Ritche" at Bell labs in 1972.

→ It is a middle-level language.

⇒ It is fast, efficient and powerful

→ used to built operating systems Like UNIX, Linux, and many embedded systems.

⇒ Highly portable.

⇒ Provides rich set of data type, operators and control statements.

⇒ Supports structured programming, which makes programs easy to read, debug and modify.

② Applications of c programming?

⇒ used to develop operating systems.

   Eg: UNIX, Linux kernel

⇒ used in system software like compilers, interpreters and assemblers.

⇒ widely used in embedded systems.

   Eg: Microcontrollers, IoT devices.

⇒ used to develop device drivers and Hard ware-level programming.

⇒ Helps in creating databases (like early versions MYSQL)

⇒ used to develop device drivers and Hard ware-level programming.

⇒ used in game development for fast performance.

⇒ used in network programming (sockets, protocols)

⇒ form the base for language development
       C++, java, python Interpreters.

⇒ used in Real-time systems and High-performance applications.

③ What is variable?

A variable is a name given to a memory location that is used to store data in a program.

⇒ A variable is a storage location in memory.

⇒ It holds a value that can change during program execution.

⇒ Each variable has a name, a type, and a value.

⇒ The data type of a variable decides what kind of data it stores.

⇒ variables helps in storing, processing and retrieving data.

⇒ It makes programs dynamic and flexible.

⇒ Must be declared before use.

④ What are different types in c programming?

C has three main categories of data types:

(i) primary (Basic) data types:
  * int → stores integers
  * float → stores decimal numbers
  * double → stores large decimal numbers.
  * char → stores a single character.

(ii) Derived data types:
  * Arrays
  * pointers
  * functions
  * structures
  * unions

(iii) user-defined data types:
  * struct
  * union
  * enum
  * typedef

⑤ What is format specifier?

A format specifier is a symbol used in c to tell the compiler what type of data you want to print on read using printf and scanf.

* used inside printf and scanf
* Specifies the type of data (int, float, char, etc)
* Begins with % symbol
* Helps the compiler interpret data correctly
* Necessary for output/input operations.

data type	format specifier
int	%d or %i
float	%f
double	%lf
char	%c
string	%s
long int	%ld
unsigned int	%u