1. What is c language?

the clanguage is general-purpose, procedural computer programing language developed in the early 1970s by Dennis Ritchie at Bell Labs.

key characteristics

Mid-level language: It contains features of both low level (like assembly, allowing memory manipulation and high level languages (providing structures and portability.

Procedural: Programs providing are organised into functions (procedures) that containstructure sequences of staments to be executed.

portability: C compails are avaible for almost every computer architectare, making code written in highly portable

Memory Mangement: It allows for direct memory manipulation using pointers, which gives programers finegrained contol bd also requers careful handing.

Foundation: Many moderon languages (like C++, java, Python) and operating system (like Linux and parts of windows) are either written in cor haveily intluenced by its syntax and concepts.

2. What are the applications of cprograming?

A: The c language is foundational in sortware development primarily due to efficiency, speed and capability for low-level - hard ware interction.

. Operating Systems (OS):

. Core development :- Used to write the kernel the heart of the os (e.g linux, UNIX).

. Reason :- Provides direct memory access and generate highly efficient machine code.

2. Embaded system & IOT :-

. Hardware contel :- Ideal for resource - constrained devices (small memory / cpu) like microcontrolls, trafficlights smart home applications, and cameras.

. Reason :- Small memory foot print and fast execution speed are essential.

3. System Programing & utilities :-

. Device Drivers :- Used to create software interfaces for hardware devices (eg. printers. graphics).

. Utility Tools :- Building essential system comonands and utility (eg is grep in Unix)

4 Compilers and interpreters.

. language Tools :- The underlying code for many compolies (eg. Gcc) and the core interpreters for languages like python (Cpython) are written in C.

. Reason :- C's speed is leveraged to tanslate and excute other programming languages.

3. What is variable ?

A:- A variable in computer programing is named storage location in the computers memory (RAM) that holds a valo. the value stored in this location can change during the execution of program, which is why it is called "variable".

4) What are the data types in C progamaing.

An: The primary fondamental data types in C piogiamaing are :

- int : For integer (whole numbers)
- char : for a single character or small integers.
- float : for single-precision floating-point numbers (num with a decimal point).
- double : for double-precision floating-point numbers (more precise than float).
- Void : Used for specifying a function that returns value or for generic pointers

5. What is format specifier ?

An: A format specifier is a place holder used in input/output functions in clike progaming languages (such as C, C++, and others to tell the compiler what type of data for output

They are typically preceded by a percent sign %.

An:

Specifiers	data type in handles int	Description:
%d or %i		speed decimal integer.
%f	float or double	decimal floating numbers
%c	char	single character
%lf	double	used floating (scanf) a double for print
%s	char*	string (array of character.
%u	usigned	unsigned decimal integer
%p	pointer	memory address pointer