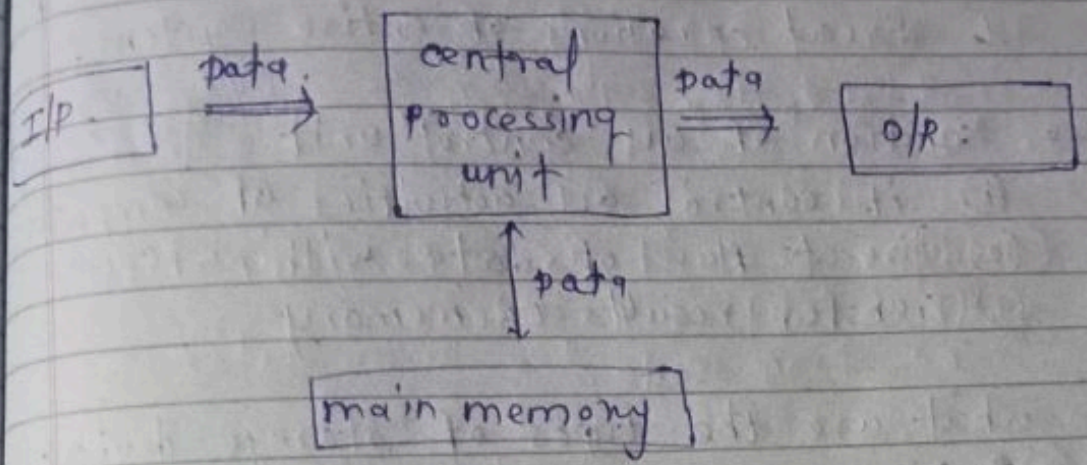
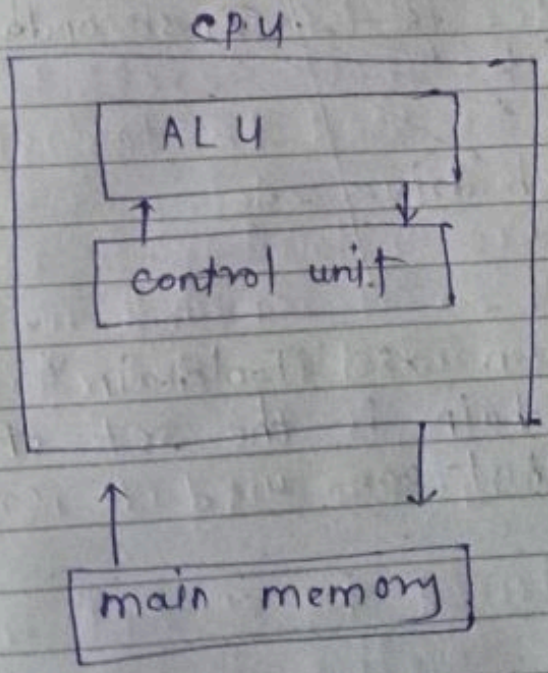
(1) Computer Architecture & Comp. Fun.

what are the components of computer?
(1) CPU (2) Input devices (3) Output devices





(1) CPU → The central processing unit (CPU) is called "the brain of computer". as it controls operations of all parts of computer.
(ii) it consists of two components:
Arithmatic logic unit (ALU) & control unit.

② ALU → Data enterd into computer is send to RAM from where it is send to ALU.

③ control unit → This part CPU extract instruction, performs execution, maintains & direct operations of entire system.

* Function of all control unit.
① it control all activities of computer
② Direct flow of data within CPU
③ Transfer results to memory

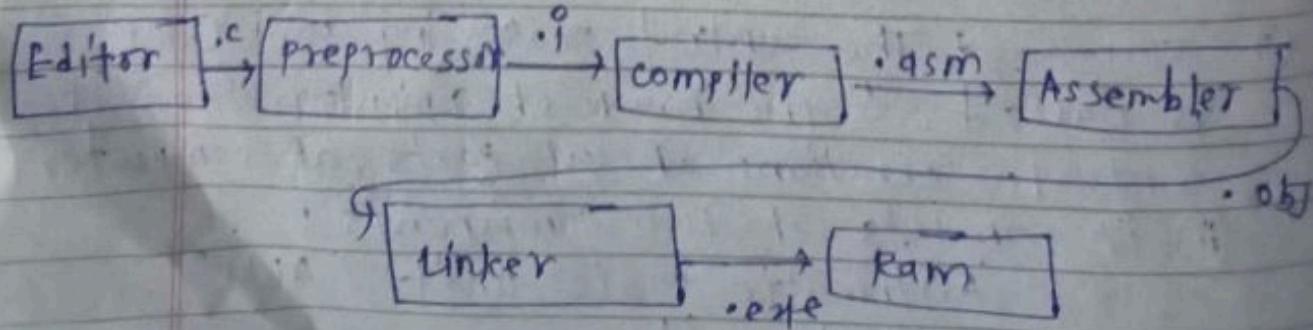
Q2 what are the types of storage devices?

→
① Ram
② Rom
③ Hard disk
④ SSD
⑤ USB flash drive

① Primary storage
② secondary storge

Q3. what is mean x86 Toolchain?

→ x86 Toolchain is the set of Programming Tools that are used to create software



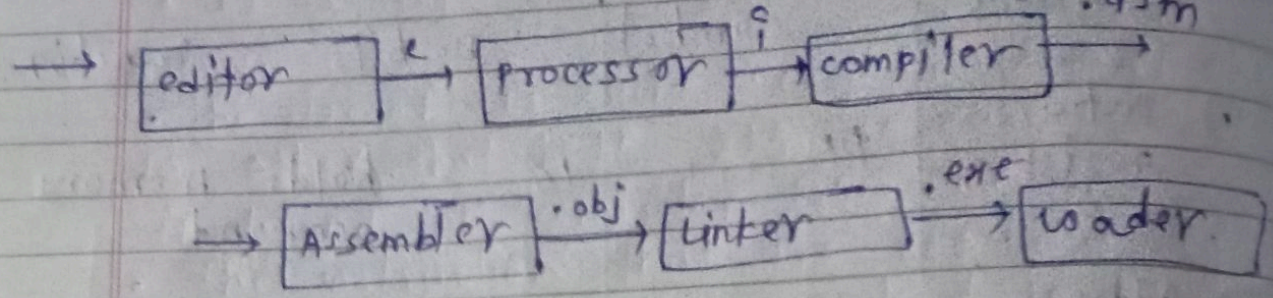
(a) what are the type of CPU register & explain use of each CPU register?

→

Register	Symbol	No. bits	Function.
(1) Data register	DR	16	holds memory operand
(2) Address register	AR	12	holds address for the memory.
(3) Accumulator	AC	16	precessor register
(4) instruction register	IR	16	holds instruction code.
(5) program counter	PC	12	holds address of the instruction
(6) Temporary register	TR	16	holds Temporary Data.
(7) input register	INTR	8	carries input character.
(8) output register	OUTR	8	carries output character.

* segmend register
* pointer register.
* Index register.
* flag register.

Q(5) Explain working of each component of x86 Toolchain.



(1) editor → it is a program where we write & edit our code
ex vs code.

(2) Preprocessor → used for pre-processing
#include, #define etc.

(3) compiler → used to Program code translate into machine code.

(4) Assembler → it convert machine dependable code to machine understandable code (Binary).
its give .obj file it is not executable

(5) Linker → used to a link one or more object file together.

(6) Loader → it loads .exe file from hard Disk to Ram

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explain The each steps of block diagram.

① step 1:- editor is program in which we can write our code. & that edit that code.
create a firstly hallo.c file & write code.

② compiler → ~~mo~~ program code translate into machine code.
after write a code & compile this code. & give to a .asm file.

③ Assembler → convert machine dependable code to machine understandable code (Binary)
& give to a hallo.obj file.

④ linker — it is a linker one or more obj file together
& file conver into .exe file.
hallo.exe.

⑤ loader → its load a hallo.exe file in Ram.

⑥

⑦

⑧

⑨

(Le1) cache or Primary cache

- L1 is Type primary type of cache memeory.
- The size of L1 cache very small compaire to other that betn 2kB to 64kB, it depend on computer processor.
- The instruction that are required by cpu that are fisty searched in L1 cache.

ex. Program couter, accumulator.

L2 or secondary cache.

(2)
- L_2 is secondary type cache memory
- The size of cache L_2 is more capacious then L1 that betn 256kB to 512kB.
- L_2 cache is located on computer micro processor.
- After searching instruction in L1 cache, if not found then it searched into L2 cache by computer, microprocesson.

(3) (L_3) cache or main memory.

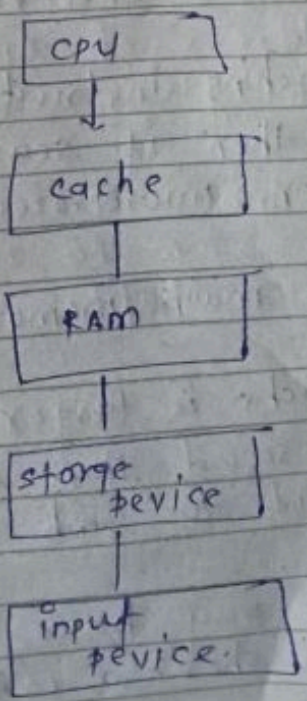
- The L_3 cache is larger in size but also slower in speed then L1 & L2 its size betn 1mb to 8mb, in multi core processor.
- each core may have seprate L1 & L2 but all core share a common L_3 cache
- L_3 cache double speed then the Ram

what are the task of operating systems?

→ (1) file management
(2) memory mangement
(3) Process mangement
(4) CPU scheduling
(5) Hard disk ADT

07. what is mean by cache memory & what are the types of cache memory?

→ • it is the volatile computer memory which is very nearest to the CPU so also called CPU memory. all the recent instruction are stored into cache memory. it is the fastest memory that provides high-speed data access to a computer microprocessor

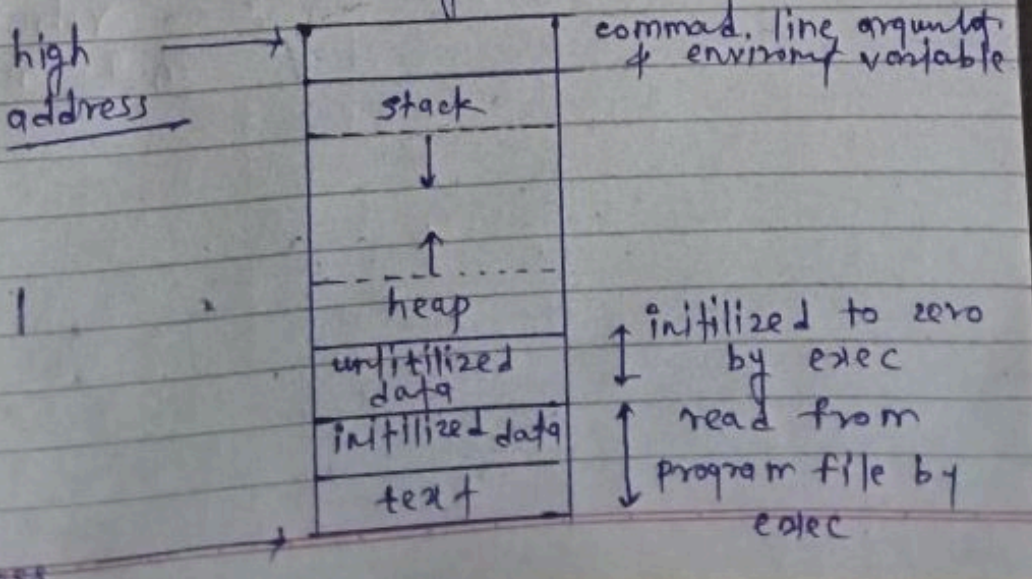


(10) what is ment by Text, data, stack section?

* Text segment (i.e. instruction)
a code as segment or simply as text, is one of the sections of a program an object file or in memory, which contain executable instruction.

* Data segment :- usually called simply the data segment. A data segment is a portion of the virtual address space of a program which contains the global variables & static variables that are initialized by the programmer.

* stack section :- The stack are traditionaly adjoined the heap area & grew in the opposite direction; when the stack pointer met the heap pointer, free memory was exhausted
The stack contains the progeam stack, a LIFO structure, typically located in the higher part of memory.



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Q9. what are the contents of primary header?

→ #include<stdio.h> ⟶ it is syntax of header file.

primary header is a structure which contains magic, number, type of executable address of entry point, time date stamp etc.

magic number is a which is used by operating system to uniquely identify the executable.