PRACTICAL ASSIGNMENT - 1
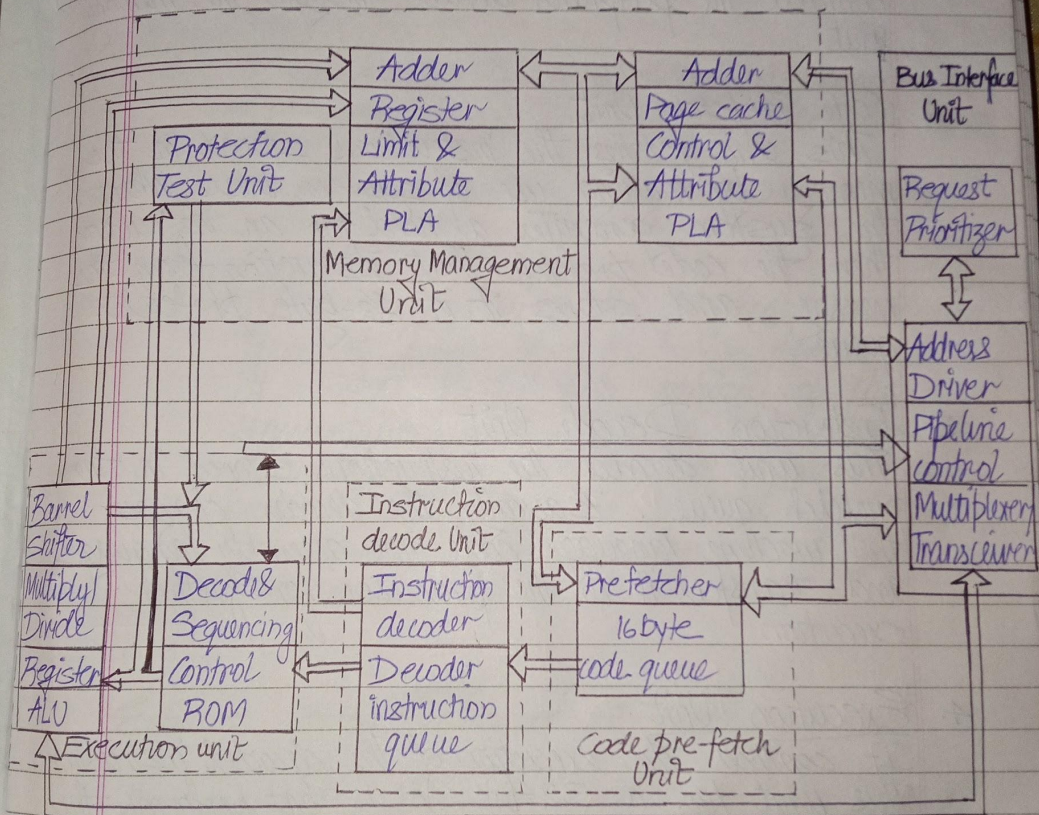
1. Explain Architecture of 80386?

There are 5 function units

1. **Bus Interface Unit (BIU)**

It holds a 32-bit bidirectional data bus as well as 32-bit address bus. Whenever a need for an

instruction or a data fetch is generated by the system then BIU generates signals for activating the data and address bus in order to fetch the data from the desired address. The BIU connects the peripheral devices through the memory unit.

2. Code Prefetch Unit
   This unit fetches the instructions stored in the memory by making use of system buses. Whenever the system generates a need for an instruction then the code prefetch that instruction from the memory and stores it in 16 byte prefetch queue.

3. Instruction Decode Unit
   This unit decodes the instructions stored in the prefetch queue. Basically the decoder changes the machine language code into assembly language and transfers it to the processor for further execution

4. Execution Unit
   It controls the execution of the decoded instructions. This unit has a 32-bit ALU, that performs the operation over 32 bit data in one cycle. Also, it consists of 8 general purpose as well as 8 special purpose registers. These are used for data handling & calculation of offset address

5. Memory Management Unit

      1. Segmentation unit
      2. Paging Unit

a) Segmentation unit

It allows the use of two address components viz. segment and offset for relocability and sharing of code and data.
It allows segments of size 4 GB at max.

b) Paging unit

It works/organizes the physical memory in terms of pages of 4 kb size each.
It works under the control of the segmentation unit. The virtual memory is also organized in terms of segments and pages by the memory management unit.
It converts linear addresses into physical addresses

2 Explain segmentation of 80386?

The memory management unit (M.M.U) consists of segmentation unit and paging unit. In which, the segmentation unit allows the use of two address components such as segment and offset for relocability and sharing of code and data. It allows segments of size 4GB at maximum.