Name :- Abdullah Bin Noman Tabid

Student ID :- 2120180031

Course Code :- CSE-413

Course Title :- Microprocessor

"2nd Exam"

1

Ans to the Q No 1(c)

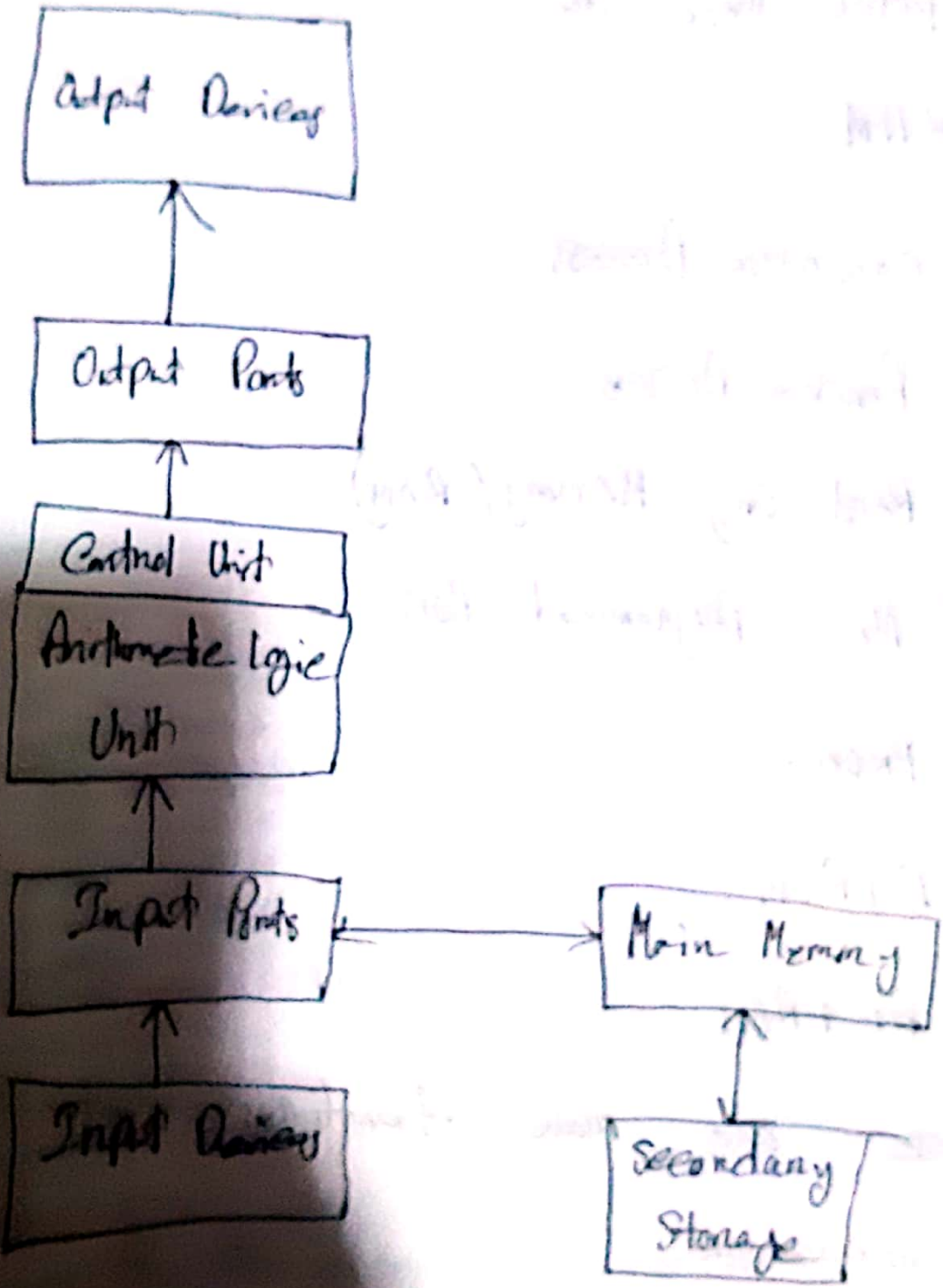


Fig: Block diagram

There are many features of a micro-computer. These are-

① RAM.

② Segmentia Access.

③ Random Access.

④ Read Only Memory (ROM).

⑤ Mask Programmed ROM.

⑥ PROM.

⑦ EPROM.

⑧ EEPROM.

These are main features of a microprocessor.

Ans to the Q No 1(b)

8085 Pin description:

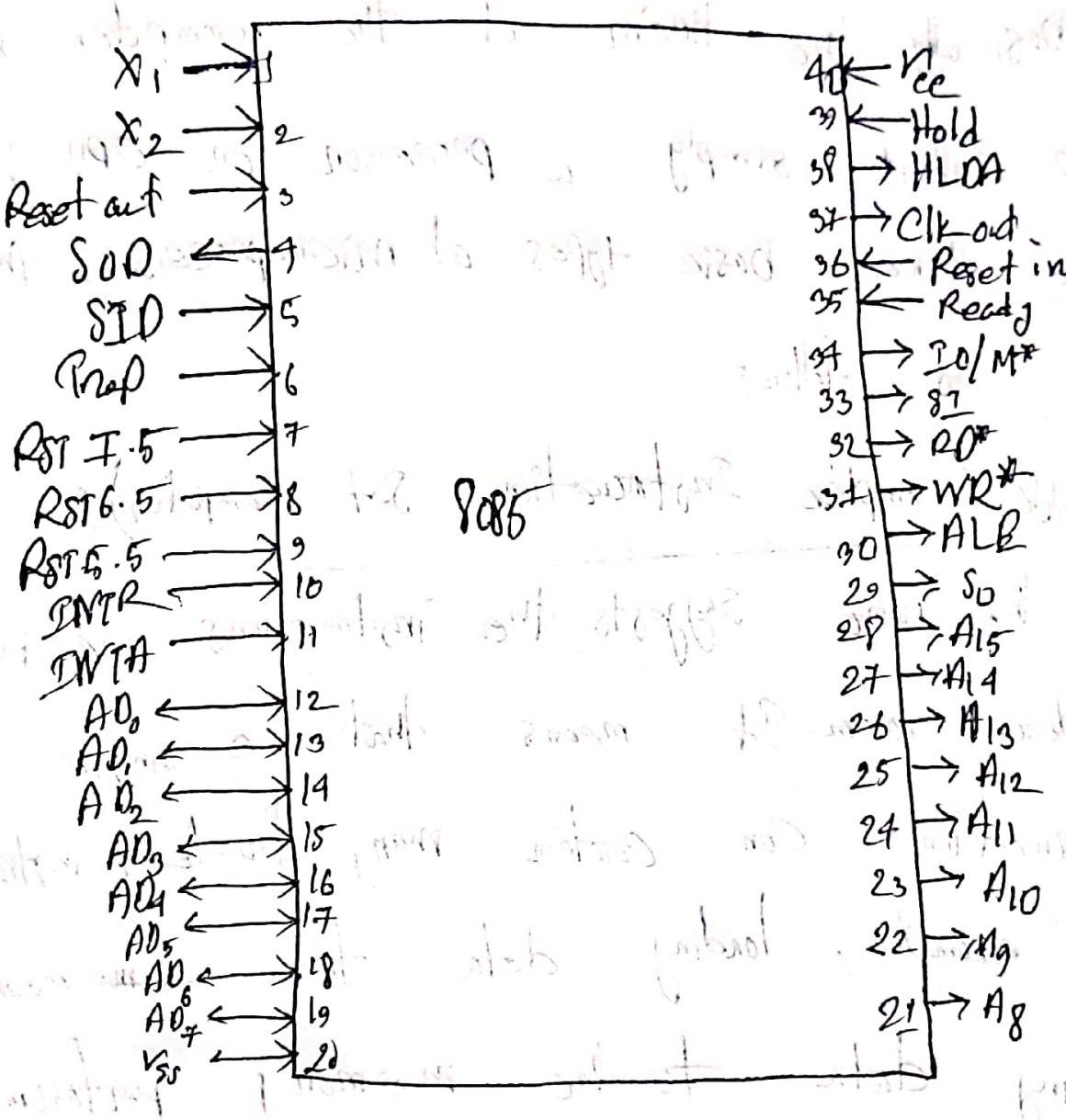


Fig. Pin diagram of 8085

Ans to the Q No 8(a)

There are three types of microprocessors namely, CISC, RISC, and EPIC. A microprocessor is basically the brain of the computer. We can also call it simply a processor or CPU. We have three basic types of microprocessors. They are as follows-

① CISC (Complex Instruction Set Computer):-

As the name suggests, the instructions are in a complex form. It means that a single instruction can contain many low-level instructions. For example, loading data from memory, storing data to the memory, performing basic operations, etc.

② RISC (Reduced Instruction Set Computer):-

As per the name, in this, the instructions are quite simple and hence, they execute quickly. Moreover, the instructions get complete in one clock cycle and also use a few addressing modes only.

③ EPIC (Explicitly Parallel Instruction Computing):-

It allows the instructions to compute parallelly by making use of compilers. Moreover, the complex instructions also process in fewer clock frequencies. Furthermore, it encodes the instructions in 128-bit bundles.

Ans to the Q No - 2(a)

Following is the sequence of operations performed by a DMA -

① Initially, when any device has to send data between the device and the memory, the device has to send DMA request to DMA controller.

② The DMA controller sends Hold request to the CPU and waits for the CPU to assert the HLDA.

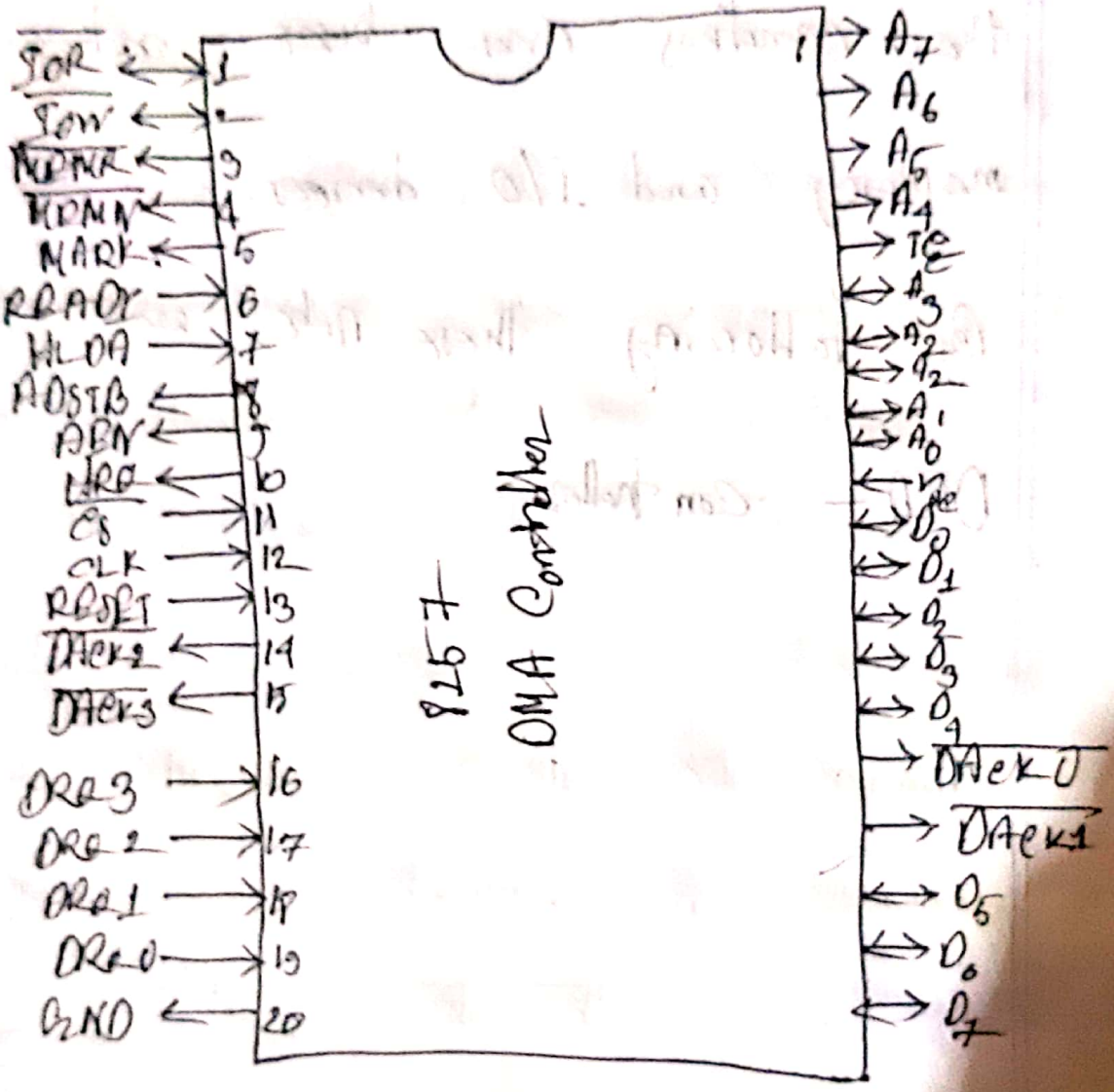
③ Then the micro processor tri-states all the data bus, address bus and control bus. The CPU leaves the control over the bus and acknowledge the HOLD request through HLDA signal.

④ Now the CPU is in HOLD state and the DMA controller has to manage the operations over buses between the CPU, memory and I/O devices.

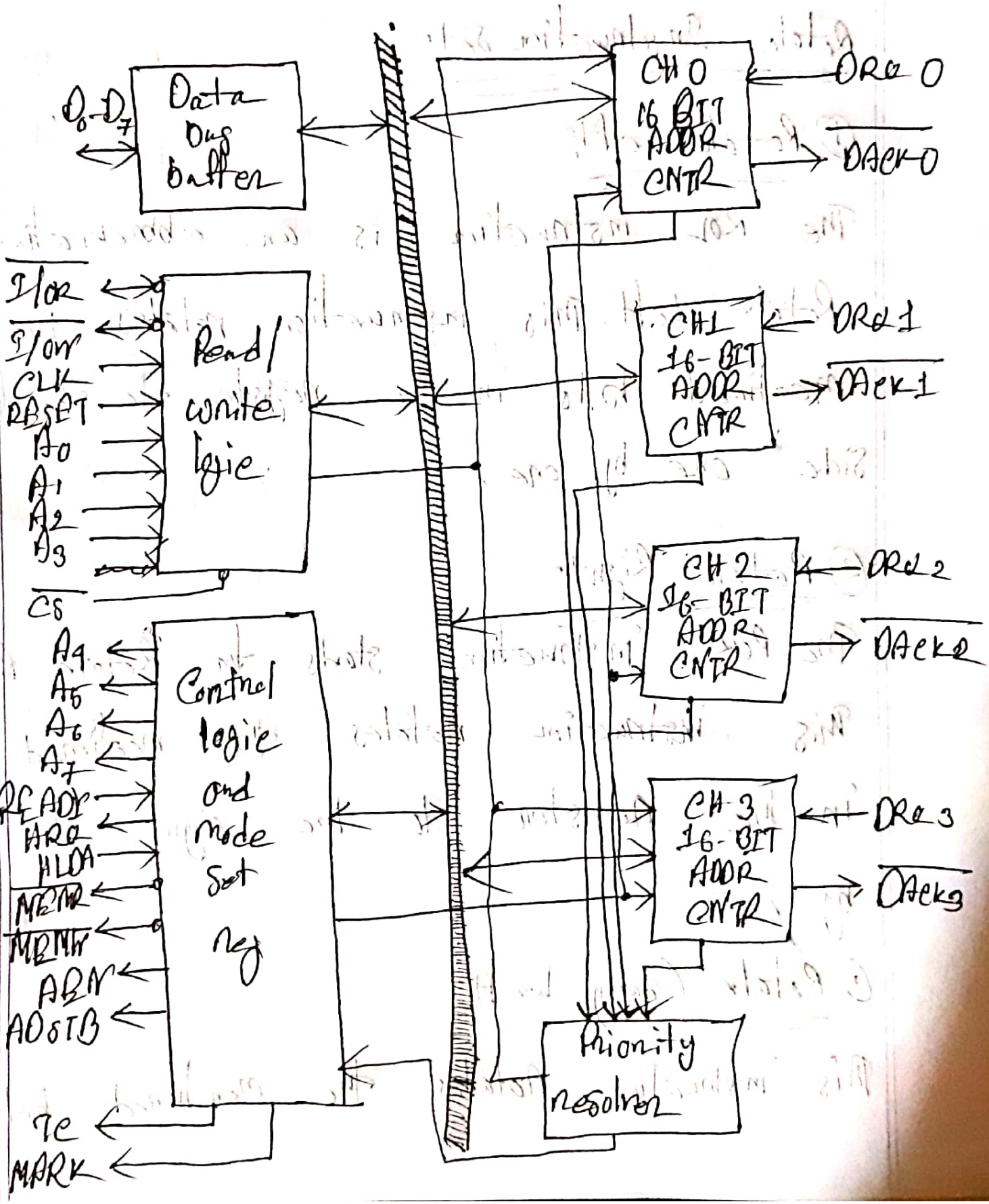
By following these rules, we can maintain DMA controller.

Ans to the Q No 2 (b)

8257 Pin Description:



8257 Architecture:



Ans to the Q No 8(a)

Rotate Instruction set:

① Rotate Left:

The ROL instruction is an abbreviation for Rotate Left. This instruction rotates the mentioned bits in the register to the left side one by one.

② Rotate Right:

The ROR instruction stands for Rotate Right. This instruction rotates the mentioned bits in the register to the right side one by one.

③ Rotate Carry Left:

This instruction rotates the mentioned bits

in the register to the left side one by one such that leftmost bit that is being rotated it is stored in the Carry flag.

④ Rotate Carry Right:

This instruction rotates the mentioned bits in the register to the right side such that right most bit that is being rotated it is stored in the Carry flag.

Shift Instruction Set:

① Shift Right:

The SHR instruction is an abbreviation for Shift Right. This instruction simply shifts the mentioned bits in the register to the right side one by one by inserting the

same number.

② Shift Arithmetic Right:

The SAR instruction stands for "Shift Arithmetic Right". This instruction shifts the mentioned bits in the register to the right side one by one but instead of inserting the zeroes from left end

③ Shift Left:

The SHL instruction is an abbreviation for shift Left. This instruction simply shifts the mentioned bits in the register to the left side one by one.

④ Shift Arithmetic Left: The SAL instruction is an abbreviation for Shift Arithmetic Left.

Mainly there are two types of branch instructions in 8086 which are further classified into two types each.

① Jump instruction.

② Call Instruction.

There are two types of Jump operation.

(a) Intrasegment branching

(b) Intersegment branching.

Ans to the Q No 3(b)

Memory: Memory is the faculty of the mind by which data or information is encoded, stored, and retrieved when needed.

I/O interfacing:

I/O interfaces are the mediums in which data are sent from internal logic to external sources and from which data are received from external sources.