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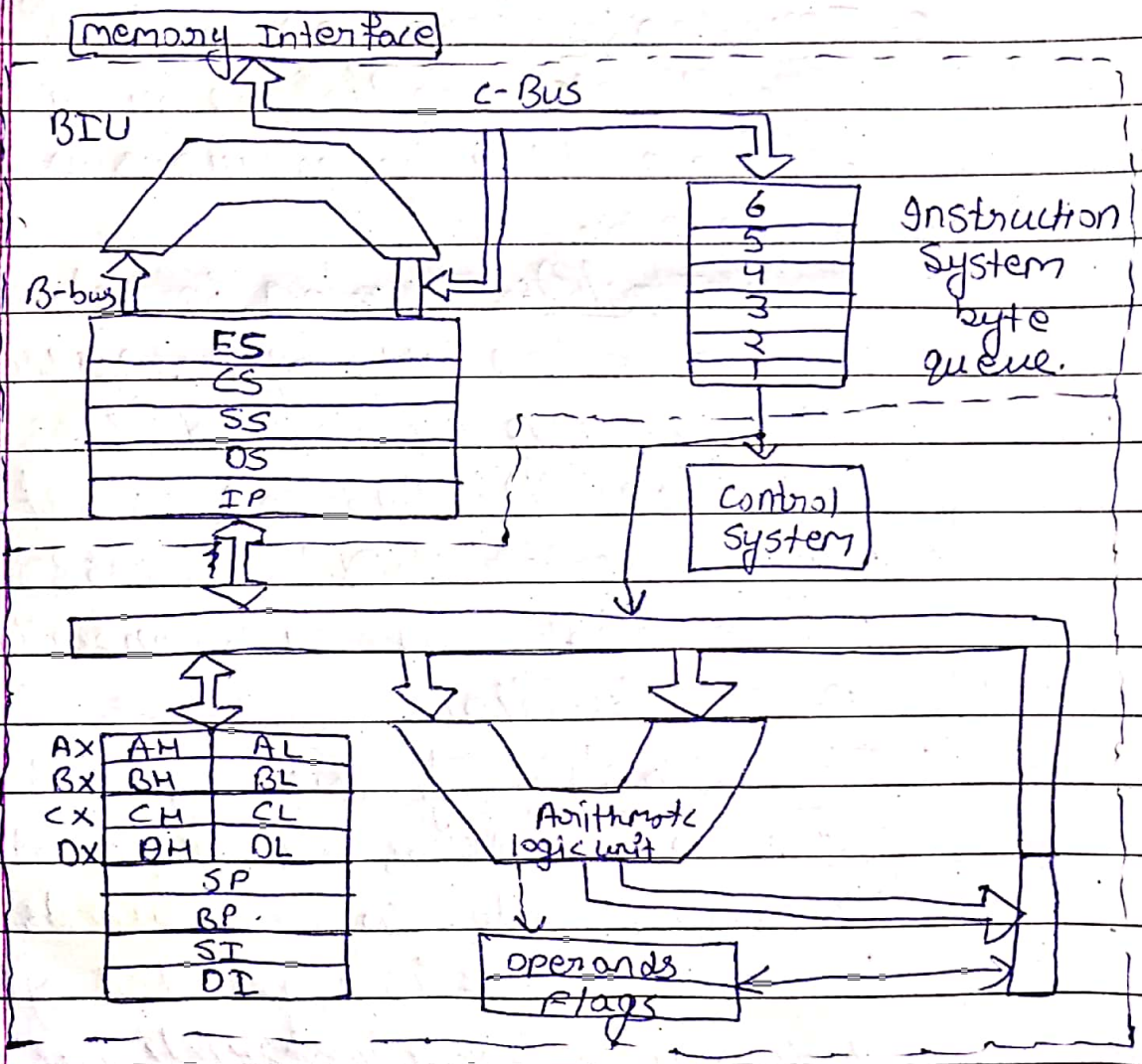
(Q1) Draw internal architecture of 8086 microprocessor. Explain the flag of 8086 microprocessor.

Sol



Flag registers:

The 8086 flag register contents indicate the result of computations in the ALU. It also contains some flag bits to control the CPU operations.

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15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
X	X	X	X	O	D	I	T	S	Z	X	AC	X	P	X	CY

The discription of each flag bit is as follows

1. Sign flag (S): This flag is set, when the result of any computation is negative.
2. Zero flag (Z): This flag is set if the result of computation or comprision performed by the previous instruction is zero.
3. Parity flag (P): This flag is set to 1, if the lower byte of the result contains even number of 1's.
4. Carry flag (CY): This flag is set when there is a carry out of MSB in case of addition or borrow in case of substraction.
5. Trap flag (T): If this flag is set, the processor enters, the single step execution mode. In other words, a trap interrupt is generated after execution of each instruction.
6. Interrupt flag (I): If this flag is set, the maskable interrupts are recognized by the CPU, otherwise they are ignored.

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7. Auxiliary carry flag (AC): This set, if there is a carry from the lowest nibble means bit three.

9. overflow flag (O): This flag is set, if an overflow occurs.