MICROPROCESSOR VIVA QUESTIONS AND ANSWERS

1. What is a Microprocessor?

Microprocessor is a CPU fabricated on a single chip, program–controlled device, which fetches the instructions from memory, decodes and executes the instructions.

2. What is Instruction Set?

It is the set of the instructions that the Microprocessor can execute.

3. What is Bandwidth ?

The number of bits processed by the processor in a single instruction.

4. What is Clock Speed ?

Clock speed is measured in the MHz and it determines that how many instructions a processor can processed. The speed of the microprocessor is measured in the MHz or GHz.

5. What are the features of Intel 8086 ?

Features:

- Ł Released by Intel in 1978
- Ł Produced from 1978 to 1990s
- Ł A 16–bit microprocessor chip.
- Ł Max. CPU clock rate:5 MHz to 10 MHz
- Ł Instruction set: x86–16
- Ł Package: 40 pin DIP
- Ł 16–bit Arithmetic Logic Unit
- Ł 16–bit data bus (8088 has 8–bit data bus)
- Ł 20–bit address bus –220 = 1,048,576 = 1 meg
- Ł The address refers to a byte in memory.
- Ł In the 8088, these bytes come in on the 8–bit data bus. In the 8086, bytes at even addresses come in on the low half of the data bus (bits 0–7) and bytes at odd addresses come in on the upper half of the data bus (bits 8–15).
- Ł The 8086 can read a 16–bit word at an even address in one operation and at an odd address in two opera tions. The 8088 needs two operations in either case.
- Ł The least significant byte of a word on an 8086 family microprocessor is at the lower address.

6. What is Logical Address?

- • A memory address on the 8086 consists of two numbers, usually written in hexadecimal and separated b y a colon, representing thesegment and the offset. This combination of segment and offset is referred to as a l ogical address
- • Logical address=segment: offset

7. What is The Effective Address:

- • In general, memory accesses take the form of the following example:
- • Mov ax, [baseReg + indexReg + constant]
- • This example copies a word sized value into the register AX.
- • Combined, the three parameters in brackets determine what is called the effective address, which is simp ly the offset referenced by the instruction

8. What is Physical Address?

Physical memory address pointed by SEGMENT:OFFSET pair is calculated as:

$$\text{Physical address} = (\langle\text{Segment Addr}\rangle * 10) + \langle\text{Offset Addr}\rangle$$

9.What are the flags in 8086?

In 8086 Carry flag, Parity flag, Auxiliary carry flag, Zero flag, Overflow flag, Trace flag, Interrupt flag, Direction flag, and Sign flag.

10.Why crystal is a preferred clock source?

Because of high stability, large Q (Quality Factor) & the frequency that doesn•t drift with aging. Crystal is used as a clock source most of the times.