**QUESTION FOR VIVA EXAM OF MICROPROCESSOR**

**1. What is a Microprocessor?**  
Microprocessor is a program-controlled device, which fetches the instructions from memory, decodes and executes the instructions. Most Micro Processor are single- chip devices.

**2. 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.

**3. 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.

**4. In 8085 which is called as High order / Low order Register?**  
Flag is called as Low order register & Accumulator is called as High order Register.

**5. What is Tri-state logic?**  
Three Logic Levels are used and they are High, Low, High impedance state. The high and low are normal logic levels & high impedance state is electrical open circuit conditions. Tri-state logic has a third line called enable line.

**6. What happens when HLT instruction is executed in processor?**  
The Micro Processor enters into Halt-State and the buses are tri-stated.

**7. Which Stack is used in 8085?**  
LIFO (Last In First Out) stack is used in 8085.In this type of Stack the last stored information can be retrieved first

**8. What is Program counter?**  
Program counter holds the address of either the first byte of the next instruction to be fetched for execution or the address of the next byte of a multi byte instruction, which has not been completely fetched. In both the cases it gets incremented automatically one by one as the instruction bytes get fetched. Also Program register keeps the address of the next instruction.

**9. What are the various registers in 8085?**  
Accumulator register, Temporary register, Instruction register, Stack Pointer, Program Counter are the various registers in 8085

**10. What is 1st / 2nd / 3rd / 4th generation processor?**  
The processor made of PMOS / NMOS / HMOS / HCMOS technology is called 1st / 2nd / 3rd / 4th generation processor, and it is made up of 4 / 8 / 16 / 32 bits.

**11. Name the processor lines of two major manufacturers?**  
High-end: Intel - Pentium (II, III, 4), AMD - Athlon. Low-end: Intel - Celeron, AMD - Duron. 64-bit: Intel - Itanium 2, AMD - Opteron.

**12. What’s the speed and device maximum specs for Firewire?**  
IEEE 1394 (Firewire) supports the maximum of 63 connected devices with speeds up to 400 Mbps. Where’s MBR located on the disk? Main Boot Record is located in sector 0, track 0, head 0, cylinder 0 of the primary active partition.

**13. Where does CPU Enhanced mode originate from?**  
Intel’s 80386 was the first 32-bit processor, and since the company had to backward-support the 8086. All the modern Intel-based processors run in the Enhanced mode, capable of switching between Real mode (just like the real 8086) and Protected mode, which is the current mode of operation.

**14. How many bit combinations are there in a byte?**  
Byte contains 8 combinations of bits.

**15. Have you studied buses? What types?**  
There are three types of buses.  
Address bus: This is used to carry the Address to the memory to fetch either Instruction or Data.  
Data bus : This is used to carry the Data from the memory.  
Control bus : This is used to carry the Control signals like RD/WR, Select etc.

**16. What is the Maximum clock frequency in 8086?**  
5 Mhz is the Maximum clock frequency in 8086.

**17. What is meant by Maskable interrupts?**  
An interrupt that can be turned off by the programmer is known as Maskable interrupt.

**18. What is Non-Maskable interrupts?**  
An interrupt which can be never be turned off (ie. disabled) is known as Non-Maskable interrupt

**19. What are the different functional units in 8086?**  
Bus Interface Unit and Execution unit, are the two different functional units in 8086.

**20. What are the various segment registers in 8086?**  
Code, Data, Stack, Extra Segment registers in 8086.

**21. What does EU do?**  
Execution Unit receives program instruction codes and data from BIU, executes these instructions and store the result in general registers.

**22. Which Stack is used in 8086? k is used in 8086?**  
FIFO (First In First Out) stack is used in 8086.In this type of Stack the first stored information is retrieved first.

**23. 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.

**24. What is SIM and RIM instructions?**  
SIM is Set Interrupt Mask. Used to mask the hardware interrupts.  
RIM is Read Interrupt Mask. Used to check whether the interrupt is Masked or not.

**25. What is the difference between 8086 and 8088?**  
The BIU in 8088 is 8-bit data bus & 16- bit in 8086.Instruction queue is 4 byte long in 8088and 6 byte in 8086.

**26. Give example for Non-Maskable interrupts?**  
Trap is known as Non-Maskable interrupts, which is used in emergency condition.

**27. Give examples for Micro controller?**  
Z80, Intel MSC51 &96, Motorola are the best examples of Microcontroller.

**28. What is clock frequency for 8085?**  
3 MHz is the maximum clock frequency for 8085.

**29. Give an example of one address microprocessor?**  
8085 is a one address microprocessor.

**30. Give examples for 8 / 16 / 32 bit Microprocessor?**  
8-bit Processor - 8085 / Z80 / 6800; 16-bit Processor - 8086 / 68000 / Z8000; 32-bit Processor - 80386 / 80486

**31. What is meant by a bus?**  
A bus is a group of conducting lines that carriers data, address, & control signals.

**32. What are the various registers in 8085?**  
Accumulator register, Temporary register, Instruction register, Stack Pointer, Program Counter are the various registers in 8085

**33. 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.

**34. In 8085 which is called as High order / Low order Register?**  
Flag is called as Low order register & Accumulator is called as High order Register.

**35. Name 5 different addressing modes?**  
Immediate, Direct, Register, Register indirect, Implied addressing modes

**36. In what way interrupts are classified in 8085?**  
In 8085 the interrupts are classified as Hardware and Software interrupts.

**37. What is the difference between primary & secondary storage device?**  
In primary storage device the storage capacity is limited. It has a volatile memory. In secondary storage device the storage capacity is larger. It is a nonvolatile memory. Primary devices are: RAM / ROM. Secondary devices are: Floppy disc / Hard disk.

**38. Which Stack is used in 8085?**  
LIFO (Last In First Out) stack is used in 8085.In this type of Stack the last stored information can be retrieved first.

**39. What is Program counter?**  
Program counter holds the address of either the first byte of the next instruction to be fetched for execution or the address of the next byte of a multi byte instruction, which has not been completely fetched. In both the cases it gets incremented automatically one by one as the instruction bytes get fetched. Also Program register keeps the address of the next instruction.

**40. What is the RST for the TRAP?**  
RST 4.5 is called as TRAP.

**41. What are level-triggering interrupt?**  
RST 6.5 & RST 5.5 are level-triggering interrupts.

**42. Which interrupt is not level-sensitive in 8085?**  
RST 7.5 is a raising edge-triggering interrupt.

**43. What are Software interrupts?**  
RST0, RST1, RST2, RST3, RST4, RST5, RST6, RST7.

**44. What are the various flags used in 8085?**  
Sign flag, Zero flag, Auxiliary flag, Parity flag, Carry flag.

**45. In 8085 name the 16 bit registers?**  
Stack pointer and Program counter all have 16 bits.

**46. What is Stack Pointer?**  
Stack pointer is a special purpose 16-bit register in the Microprocessor, which holds the address of the top of the stack.

**47. What happens when HLT instruction is executed in processor?**  
The Micro Processor enters into Halt-State and the buses are tri-stated.

**48. What does Quality factor mean?**  
The Quality factor is also defined, as Q. So it is a number, which reflects the lossness of a circuit. Higher the Q, the lower are the losses.

**49. How many interrupts are there in 8085?**  
There are 12 interrupts in 8085.

**50. What is Tri-state logic?**  
Three Logic Levels are used and they are High, Low, High impedance state. The high and low are normal logic levels & high impedance state is electrical open circuit conditions. Tri-state logic has a third line called enable line.

**51. Which interrupt has the highest priority?**  
TRAP has the highest priority

**52. What are Hardware interrupts?**  
TRAP, RST7.5, RST6.5, RST5.5, INTR

**53. Can an RC circuit be used as clock source for 8085?**  
Yes, it can be used, if an accurate clock frequency is not required. Also, the component cost is low compared to LC or Crystal