

Tutorial-1

1. Briefly discuss the evolution of microprocessors. Also mention the important features of different generations.
2. Explain Harvard architecture and give reason behind this architecture being faster than Von-Neumann architecture.
3. Differentiate between microprocessor and microcontroller.
4. Enlist the greatest breakthrough in microprocessor so that modern processor are available for personal computer.
5. Differentiate between Von-Neumann and Harvard architecture.
6. Explain the microcomputer Architecture.

Tutorial-2 [8085]

1. Draw and explain the architecture of 8085 μ p.
2. Explain with example the addressing mode of 8085 μ p.
3. Define flags also explain the role of all the flags bits in 8085 μ p with essential examples.
4. Explain about the types of instruction sets available in 8085 μ p.
5. Draw the timing diagram of following instructions:
i) `MVI A, 24H`
ii) `OUT 24H`
iii) `STA 0000H`
iv) `LDA 9000H`
v) `IN 4FH`
vi) `MOV M, B`
vii) `MOV B, M`
6. Specify the function of the following instructions from 8085 instruction set

- i) `LXI`
- ii) `LDAX`
- iii) `JC`
- iv) `PUSH`
- v) `SBB`

7. Write an 8085 ALP to find out the largest number in an array available from memory location starting from 2500H to 2510H and store the result in the register B.
8. Write an 8085 program for the following type of addition

$$1^2 + 2^2 + 3^2 + \dots + 9^2$$
9. Write an ALP in 8085 to find whether the given number is palindrom or not.
10. Write a 8085 program to find smallest of three number.
11. Write an ALP in 8085 to count no of zeros in the given 8 bit of data 55H and store the result in memory location 2050H.
12. Write an ALP in 8085 to transfer a table of ten data bytes stored in memory location from 2050H into another memory location starting from 3050H.
13. Write an ALP in 8085 microprocessor to add two 16 bit numbers, ~~store~~ ^{and store the result} in memory location 2050H and 2051H.

Tutorial-3 [8086]

1. Explain the features of 8086 microprocessors.
2. Draw and explain the internal architecture of 8086 μp .
3. If the data segment starts at location $1000H$ and a data reference contains the address $29H$ what is the physical address of the data?
4. Define addressing mode. Explain about the addressing modes available in 8086 microprocessors.

Tutorial-4

1. Draw and explain about memory hierarchy.
2. How associative memory is different than other memories. Draw and explain about associative memory.
3. Define cache mapping technique. Explain about different types of cache mapping techniques.
4. Explain about cache Replacement algorithm.
5. Differentiate between SRAM and DRAM.