

CS406ES: COMPUTER ORGANIZATION LAB

B.Tech. II Year II Sem.

Exercises in Digital Logic Design:

1. Implement Logic gates using NAND and NOR gates
2. Design a Full adder using gates
3. Design and implement the 4:1 MUX, 8:1 MUX using gates /ICs.
4. Design and Implement a 3 to 8 decoder using gates
5. Design a 4 bit comparator using gates/IC
6. Design and Implement a 4 bit shift register using Flip flops
7. Design and Implement a Decade counter

Exercises in Micro Processor programming:

Write assembly language programs for the following using GNU Assembler.

1. Write assembly language programs to evaluate the expressions:

i) $a = b + c - d * e$

ii) $z = x * y + w - v + u / k$

- a. Considering 8-bit, 16 bit and 32 bit binary numbers as b, c, d, e.
- b. Considering JNTU 2 digit, 4 digit and 8 digit BCD numbers.

Take the input in consecutive memory locations and also Display the results by using "int xx" of 8086. Validate program for the boundary conditions.

2. Write an ALP of 8086 to take N numbers as input. And do the following operations on them.
 - a. Arrange in ascending and descending order.
3. Write an ALP of 8086 to take numbers as input. And do the following operations on them.
 - a. Find max and minimum
 - b. Find average

Considering 8-bit, 16 bit binary numbers and 2 digit, 4 digit and 8 digit BCD numbers. Display the results by using "int xx" of 8086. Validate program for the boundary conditions.

4. Write an ALP of 8086 to take a string of as input (in 'C' format) and do the following Operations on it.

- a. Find the length
- b. Find it is Palindrome or n.

Considering 8-bit, 16 bit binary numbers and 2 digit, 4 digit and 8 digit BCD numbers. Display the results by using "int xx" of 8086. Validate program for the boundary conditions.

5. Write an ALP of 8086 to take a string of as input (in 'C' format) and do the following Operations on it.
 - a. Find whether given string substring or not.

6. Write an ALP of 8086 to take a string of as input (in 'C' format) and do the following Operations on it
 - a. Find the Armstrong number
 - b. Find the Fibonacci series for n numbersDisplay the results by using "int xx" of 8086.
7. Write the ALP to implement the above operations as procedures and call from the main procedure.
8. Write an ALP of 8086 to find the factorial of a given number as a Procedure and call from the main program which display the result.

REFERENCE BOOKS:

1. Switching theory and logic design –A. Anand Kumar PHI, 2013
2. Advanced microprocessor & Peripherals-A. K. Ray and K. M. Bherchandavi, TMH, 2nd edition.
3. Switching and Finite Automatic theory- Zvi Kohavi, Niraj K.Jha Cambridge, 3rd edition
4. Digital Design –Morris Mano, PHI, 3rd edition
5. Microprocessor and Interfacing –Douglas V. Hall, TMGH 2nd edition.



