

# **EET-305 Microprocessors**

## **Assignments**

Write Programs in Assembly language for 8085 microprocessors.

1. Study of all arithmetical and logical instructions
2. Write an assembly language program to find the largest of three numbers stored in the memory location 2050H, 2051H and 2052H, assuming that all three numbers are unequal.
3. Write an assembly language program to find the largest of the given list of  $n$  data bytes stored in the memory starting from memory location 2071H. Count of data bytes in the list (i.e.  $n$ ) is stored at memory location 2070H.
4. Write an assembly language program to find the smallest of the given list of  $n$  data bytes stored in the memory starting from memory location 2071H. Count of data bytes in the list (i.e.  $n$ ) is stored at memory location 2070H.
5. Write an 8085 assembly language program to find the largest and smallest numbers out of 10 assigned 8-bit integers stored at 3000H onwards. Store the result at 3050H and 3051H.
6. Write an assembly language program to add the given list of  $n$  data bytes stored in the memory starting from memory location 3000H. Store the 8-bit sum in the memory location 3050H. Where  $n$  may be any number but for this case choose  $n=10$ .
7. Write an assembly language program to add the given list of  $n$  data bytes stored in the memory starting from memory location 3050H. Store the 16-bit sum in the memory location 3070H (lower byte) and 3071H (higher byte). Where  $n$  may be any number but for this case choose  $n=25$ .
8. Write an assembly language program to add the set of data bytes stored in the memory starting from 2050H. The end of data string is indicated by 00H. Result may be larger than FFH. Display the sum at port 1 and port 2.
9. Write an assembly language program to find the sum of positive numbers only and ignore negative numbers from the list of numbers. The length of the list is in memory location 2050H and the series itself begins from memory location 2051H. Store the 8-bit sum at the memory location 3070H.
10. Write an assembly language program to copy a block of data bytes from one memory location starting from 2051H to another section of memory starting from 3051H. Number of bytes to be copied is given at memory location 2050H.
11. Write an assembly language program to exchange a block of data bytes stored in the memory starting from 2051H with a block of data bytes stored at another section of memory starting from 3051H. Number of bytes to be exchanged is given at memory location 2050H.

12. A set of 8 data bytes is stored in the memory locations starting at 2050H. Write an assembly language program to check each data byte for bit D<sub>7</sub> and D<sub>0</sub>. If D<sub>7</sub> or D<sub>0</sub> is 1, reject the data byte; otherwise, store the data bytes at memory locations starting from 2060H.

13. Write an assembly language program for shifting of block of data from memory locations 3000H – 3009H to new memory locations 3050H – 3059H in reverse order. i.e., data from 3000H will be moved to 3059H and so on.

14. Write an 8085 assembly program to check if the Input string of characters (in ASCII codes) stored at location 2050H to 205FH is equal to a string stored at location 2100H to 210FH (in ASCII codes). If two strings are same, display 1 at Port 1, otherwise 0.

15. Write an assembly language program to search a data byte in stored at memory location 3000H in the list of 100 data bytes stored in the memory starting from location 3001H. If the data byte is found, display 01H and if not found display 00H, on the output port 82H.

16. Write an assembly language program to scan a data byte in the memory block of 128 bytes starting from 2501H. Assume that the data byte to be scanned is stored at 2500H. Store the number that how many times the given data byte is found in the memory block, at memory location 4000H and also display the data byte and the number at output port 00H and 01H respectively.

17. Write a program to multiply two 8-bit numbers. Multiplicand is extended to 16-bit and stored in the two consecutive memory locations 2050H and 2051H. The multiplier is stored at 2052H. Store the 16-bit product at two consecutive memory locations 2053H and 2054H.

18. Write an assembly language program to divide a 16-bit dividend, stored in memory locations 2051H & 2052H, by an 8-bit divisor, stored in memory location 2053H. After division the quotient must be stored in memory location 2054H and remainder in memory location 2055H.

19. Write an assembly language program to perform addition of two Hexadecimal Numbers as given below:

9A5B8938H & 8BC34AD1H

20. Write an assembly language program to sort the list of bytes, in ascending order, stored in the memory starting from 2061H. The count of the bytes in the list is stored at memory location 2060H.

21. Write an assembly language program to convert 8-packed BCD number into its equivalent 8-bit binary number.

22. Write an assembly language program to convert 8-bit Binary number to its equivalent packed BCD number.