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**EL2003 - Computer Organization and Assembly Language - Lab**

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| **Lab Instructor: Abdul Qadeer Bilal**  **Section: BCS 3A, 3B, 3C**  **Semester: Fall 2022**  **Lab: 04** |

**Roll Number:\_\_\_\_\_\_\_\_\_\_\_ Section:\_\_\_\_\_\_\_\_\_\_ Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Note: Program all Questions on AFD and Put code + Screenshot in the Word File till end of Lab.**

1. Write the assembly program to add 5, 9 and 14. Store them in variables and use direct Addressing mode. All the numbers are word type (16 bits).
2. Write the assembly program to subtract 18 from 30. Store them in Appropriate variables and use register indirect Addressing mode. All the numbers are Byte type (Byte bits).
3. Write the following program in assembly to Find the values of result1 and result2 variables.  
   x = 5

y = 10

result1 = x + y – 3

result2 = result1 - 9 + y

Store x and y as memory variables and then store result in result1 and result2 variables Using register indirect addressing mode. All the numbers are word type (16 bits)

1. Write the assembly program to add all numbers in the range (20 - 43). Save numbers in num1 variable. Then add all the numbers and save the result in the sum variable. Use register + offset addressing mode in this question. num1 label will have following declarations, you have to implement them one by one:
   1. Define Byte (8 bits)
   2. Define word (16 bits)
   3. ~~Define double word (32 bits)~~
   4. ~~Define quadword (64 bits)~~
2. Take a number in a 16-bit variable from 0 – 9 and then take another number in another variable. Take the value of your choice. Then perform the following operations using indirect addressing:
   1. Increment the num1 variable.
   2. Decrement the num2 variable.
   3. Swap the num1 and num2 variables.
   4. Display the value of num1 variable on AFD.
   5. Display the value of num2 variable on AFD.
3. Create an array of any size and give some values to it. Then count all the elements of the array and store count in a memory variable. Also Display count on AFD appropriately.

**Best of Luck**