COAL

Assignment #2

## Total Marks: 80 Due Date: November 30, 2019

### Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Reg#: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Instructions:**

1. **Write assembly language codes for the given problems and submit only one file on FOITLMS.**
2. **Code should be written with proper comments.**
3. **Submissions will be checked for inter section plagiarism, so make sure you do your own code and do not share it.**
4. **Plagiarised assignments will be marked Zero and may be recommended for an F grade if required.**

**Question 1: [10]**

Consider a 32-bit hexadecimal number, such as Num: dd 0x1234ABCD;Write an assembly language program to multiply this number by 64. Use shift operation.

**Question 2: [20]**

Assuming the instruction set of x8086 architecture (16-bit), you are required to write program to multiply two 32-bit numbers. Note that, by multiplying two 32-bit numbers, result can be as large as 64-bit number. The algorithm for multiplying two 4-bit numbers is already given in Example 4.1.

**Question 3: [10]**

Write a subroutine to multiply two numbers (using repeated addition). The two numbers should be passed by value using Stack and result should be returned through AX.

**Question 4: [30]**

Consider two arrays, Source and answer as given below:

Source: db 3, 5, 7, 4, 2, 8, 6

Answer: dw 0, 0, 0, 0, 0, 0, 0

You are required to read values from array ‘Source’, one at a time, calculate its factorial (using repeated multiplication subroutine) and place it in adjacent location in second array ‘Answer’.

Since, array can be indefinitely large, writing program for calculating factorial of each number individually would increase code size, you should make subroutine for calculating factorial too.

**Question 5: [10]**

Write a subroutine to count odd numbers in an array. Pass and return the parameters by reference.