National University of Computer and Emerging Sciences

Laboratory Manual

for

Computer Organization and Assembly Language Programming

(EL 213)

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Section	J
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Objectives

After performing this lab, students shall be able to:

- ✓ Differentiate between signed and unsigned comparison.
- ✓ Learn masking and bit manipulation.
- ✓ Rotate and Shift numbers.

Exercise 1: LetAX and CX contain a number between 0-15. Write code to complement and clear thecorresponding bits of the number stored in BX.
For Example If AX contains 6 and CX contains 10, complement the 6th bit of BX and clear the 10th bit of BX.

Exercise 2: Write an assembly program that counts the number of 1s in binary of a number given in bx. The number of 1s should be stored in ax. You are not allowed to use **shift**, **rotate** or **and** instruction for this task.

Exercise 3: Write an assembly program that checks in binary whether a 16-bit number is palindrome or not. Move 1 in dx register if it is a palindrome else move 0 in dx register. Palindrome is a number which reads the same backward or forward.
For Example 0xA425 is a palindrome.

Exercise 4: Write a program to calculate the factorial of a number where factorial is defined as:
FACTORIAL(X) = X*(X-1)*(X-2)*...*1