**Logo, company name

Description automatically generated**

**Department of (Department Name)**

**Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Pakistan**

**COMP-261L Computer Organization & Assembly Language Lab**

**Lab Report: 04**

**Class: BS Computer Science**

**Name: Ahmed Raza**

**Registration No.: B20F0436CS031**

**Semester: 3rd**

**Submission Date: 21 Oct, 2021**

**Submitted to: Lab Engr. Rafi Ullah**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Instructor Signature**

**Lab No. 4**

**Logical Instructions**

**Software Required:**

**EMU8086 Software**

**Objectives**

After completing this lab, you should be able to:

* Understand the working Logical instructions.
* Understand the use the Logical Instructions by Implementing them.

**Lab Tasks:**

**Lab Task 01:**

Write an assembly language program that counts the number of ‘1’s in a byte residing in BH register. Store the counted number in AL register.

**Code:**

.model small

.stack 100h

.data

.code

main proc

mov bh,10011011b

mov cx,8

mov bl,0

here:

shr bh,1

jnc noadd

inc bl

noadd:

loop here

mov al,bl

main endp

endp main

**Output:**

**Graphical user interface, application, Excel

Description automatically generated**

**Lab Task 02:**

Write an assembly language program that counts the number of ‘0’s in a byte residing in BL register. Store the counted number in AL register.

**Output:**

.model small

.stack 100h

.data

.code

main proc

mov bl,10011010b

mov cx,8

mov bh,0

here:

shr bl,1

jc noadd

inc bh

noadd:

loop here

mov al,bh

main endp

endp main

**output:**

**Graphical user interface

Description automatically generated**

**Lab Task 03:**

Write an assembly language program that sets (1) the rightmost 5 bits of DI without changing the remaining bits of DI. Save the results in SI.

**Code:**

.model small

.stack 100h

.data

.code

main proc

mov di,1001010110101010b

mov ax,0000000000011111b

or di,ax

mov si,di

main endp

endp main

**output:**

**Graphical user interface, application

Description automatically generated**

**Results & Observations:**

In this lab we learn about the working of logical instructions AND ,OR,XOR,NOT. We also learn about the use of logical instruction by implementing them in different tasks. We also learn about RCL,ROL,RCR,ROR and about SHR,SHL and SAR instruction. We practice them by using in task assigned by teacher and completed by having this concepts.