Laboratory Exercise No.:	3	**Date Performed:**	
Laboratory Exercise Title:	Assembly Language Instructions		
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Laboratory Report

Activity #32-1

Instruction	Register value after the instruction is executed	IF= 1 ALL
JMP START	None changed.	
MOV AX,00H	IP = 107	
MOV CL,05H	IP = 010A	
MOV SI,00H	CX = 0005, IP = 010C	
ADD AL, ARR[SI]	IP = 010F	
INC SI	IP = 0113,	
DEC CL	IP = 0114, SI = 0001	
JNZ BACK	CX = 0003, IP = 0016	PF = 1, IF = 1
MOV BL, 05H	IP = 0118	ZF = 1, PF = 1, IF = 1
DIV BL	BX = 0005, IP = 011A	ZF = 1, PF = 1, IF = 1

Activity #32-2

Code:

```
;32-2

org 100h

; ----------------------------------------
; a. Convert a character in AL to uppercase
; ----------------------------------------
   mov al, 'c'        ; sample lowercase char
   and al, 0DFh       ; clear bit 5 ? uppercase ('C')

; ----------------------------------------
; b. Convert the character in BL to lowercase
; ----------------------------------------
   mov bl, 'G'        ; sample uppercase char
   or  bl, 20h        ; set bit 5 ? lowercase ('g')

; ----------------------------------------
; c. Convert a binary decimal byte into ASCII
; ----------------------------------------
   mov cl, 7          ; sample value = 7 (decimal)
   add cl, 30h        ; convert to ASCII ? '7'

; ----------------------------------------
; d. Reverse the case (upper?lower)
; ----------------------------------------
   mov dl, 'H'        ; sample uppercase char
   xor dl, 20h        ; flip bit 5 ? lowercase ('h')

   mov dh, 'k'        ; sample lowercase char
   xor dh, 20h        ; flip bit 5 ? uppercase ('K')

; ----------------------------------------
; Exit program
; ----------------------------------------
```

```
mov ah, 4Ch
int 21h
```