University of Central Punjab

(Incorporated by Ordinance No. XXIV of 2002 promulgated by Government of the Punjab)
FACULTY OF INFORMATION TECHNOLOGY

Computer Organization and Assembly Language

Lab 12	
Topic	1. Interrupts

PART 1

Example 1: Printing Character Using Interrupt

```
start:  mov ah, 0
int 16h; wait for any key....

cmp al, 27  ; if key is 'esc' then exit.
je stop
;al contains ascii of pressed key
mov ah, 0Eh ; print it.
int 10h

jmp start

stop:

mov ax,0x4c00
int 21h
```

Example 2: Printing String Using Interrupt

```
mov al, 1;update curser after every character printing

mov bh, 0;page 0, means first page

mov bl, 00111011b;attribules

mov cx, 15 ; message size

mov dl, 10 ;row

mov dh, 7  ;col

push cs

pop es

mov bp, msg1
```

mov ah, 13h

int 10h

mov ax,0x4c00

int 21h

msg1db " hello, world! "

Example 3: (Taking Input from User and display)

MOV AX, 0xB800

MOV ES, AX   ; Initializing ES with video memory address

MOV AH, 0   ; service number

INT 0x16   ; calling interrupt number 16h

; When you call interrupt 16h with service number 0, processor waits for keyboard input. When a key is pressed, its ASCII value is stored in AL register.

; Printing the character on screen.

MOV DI, 0   ; screen location di=0 top left.

MOV AH,07h   ; attribute byte

STOSW   ; displaying on screen

Mov ax,0x4c00

Int 21h

Example 4: (Take input from User until they press Esc)

```
MOV AX, 0xB800

MOV ES, AX          ; Initializing ES with video memory address

XOR DI, DI          ; screen location di=0 top left.

again:

MOV AH, 0           ; service number

INT 0x16            ; calling interrupt number 16h
```

; When you call interrupt 16h with service number 0, processor waits for keyboard input. When a key is pressed, its ASCII value is stored in AL register.

; Printing the character on screen.

```
MOV AH,07h          ; attribute byte

STOSW                           ; displaying on screen

cmp al, 0x1b

jne again

mov ax,0x4c00

int 21h
```

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Example 5: (Taking Input from User advance the cursor position and then display the character at that location)

```
;total 3 interrupts are used to perform the task.

[org 100h]

;input interrupt

mov ah,0

int 16h

;setting cursor position interrupt

mov dh, 12

mov dl, 40

mov bh, 0

mov ah, 2

int 10h

;display character interrupt

;we have character in al pressed by the user

mov ah, 0eh

int 10h


mov ax,0x4c00

int 21h
```