

Assembly Quiz-4(II)

Total Marks: 10

Question 1: [5 Marks]

(a) Which interrupt is hooked by the following piece of code? [2]

```
[org 0x100]
```

```
jmp start
```

```
mySub:
```

```
add ax, 0x2000
```

```
iret
```

```
start:
```

```
mov ax, 0
```

```
mov es, ax
```

```
mov [es:320], mySub
```

```
mov [es:322], cs
```

(b) What is the difference between ret and iret instruction? [1]

(c) Which registers are changed by the iret instruction? [2]

Question 2: [5 Marks]

Write a code which moves an asterisk (ASCII: 0x2A) vertically downwards from first row first column to last row first column at the speed of 18.2 times/second.

1 a) int 80 or int 50h

b) ret pops ip from the stack whereas
iret pops cs, ip and flags from the
stack. Ret is used to return from
subroutines whereas iret is used to
return from interrupt service routines.

c) cs, ip, flags, sp

[org 0x100]

jmp start

position: dw 0

timer:

push ax

push di

push es

mov ax, 0xB800

mov es, ax

mov di, [cs:position]

mov word [es:di], 0x0720

cmp di, 3840

jne next

mov di, 0

next: add di, 160

mov word [es:di], 0x072A

mov [es:position], di

pop es

pop di

pop ax

mov al, 0x20

~~mov~~ out 0x20, al

iret

start: call clrscr

mov ax, 0

mov es, ax

cld

mov word [es: 8h * 4], timer

mov word [es: 8h * 4 + 2], cs

sti

mov ax, 0xB800

mov es, ax

mov di, [position]

mov word [es: di], 0x072A

} → mov ax, 0x4C00
int 21h

Assembly Quiz-4(H)

Total Marks: 10

Question 1: [5 Marks]

(a) Which interrupt is hooked by the following piece of code? [2]

```
[org 0x100]
```

```
jmp start
```

```
mySub:
```

```
add ax, 0x2000
```

```
iret
```

```
start:
```

```
mov ax, 0
```

```
mov es, ax
```

```
mov [es:240], mySub
```

```
mov [es:242], cs
```

(b) What is the difference between ret and iret instruction? [1]

(c) Which registers are changed by the iret instruction? [2]

Question 2: [5 Marks]

Write a code which moves an asterisk (ASCII: 0x2A) vertically upwards from last row first column to first row first column at the speed of 18.2 times/second.

1 a) int 60 or int 3Ch

b) ret pops ip from the stack whereas
iret pops CS, ip and flags from the stack.
Ret is used for returning from subroutines
and iret is used to return from interrupt service routines.

c) CS, ip, flags, SP

2. [org 0x100]
jmp start
position: dw 3840

timer:

```
push ax
push di
push es
mov ax, 0xB800
mov es, ax
mov di, [position]
mov word [es:di], 0x0720
cmp di, 0
jne next
mov di, 3840
next: sub di, 160
      mov word [es:di], 0x072A
      mov [position], di
```

```
pop es
pop di
pop ax
mov al, 0x20
out 0x20, al
iret
```

start:

```
call clrscr
mov ax, 0
mov es, ax
cli
mov word [es:8h*4], timer
mov word [es:8h*4+2], cs
sti
mov ax, 0xB800
mov es, ax
mov di, [position]
mov word [es:di], 0x072A
```

→ mov ax, 0x4C00
int 21h