



EE213 Computer Organization and Assembly Language

Quiz II (GR1 | GR2) – Spring 2018

Paper-B Solved

Student Name: _____ Roll No. _____ Date: _____

1. Write a procedure that should swap the values of AX in and DX in such a way that whatever is stored in AX, after swapping DX would hold reverse of it, and vice versa. (For instance, given that AX = ABCDh, DX = 7654h, after swapping: AX = 4567h and DX = DCBA). **Make use of stack and Shift/Rotate instructions for swapping and rotations. (5 Points)**

Sol:

PROC sample

```
MOV AX, 0ABCDh
MOV DX, 7654h
```

```
ROL AL, 4
ROL AH, 4
XCHG AL, AH
PUSH AX
```

```
ROL DL, 4
ROL DH, 4
XCHG DL, DH
PUSH DX
```

```
POP AX
POP DX
```

sample ENDP

2. In the following instruction sequence, show the resulting value of AL where indicated, in hexadecimal: (5 Points)

```

mov al,1Ah
not al                ; a. 0E5h
mov al,13h
and al,74h           ; b. 10h
mov al,9Bh
or al,35h            ; c. 0BFh
mov al,7Ah
xor al,0DCh          ; d. 0A6h
mov al,8Bh
test al,0B8h         ; e. 8Bh

```

3. Given that EAX = 05h, EBX = 0Ah, ECX = 0Ah, EDX = 00h, ESP = 010Ah. Fill in the table (10 Points)

<pre> main PROC 0001 SHL AL, 2 0002 PUSH EAX 0003 PUSH EBX 0004 CALL f1 0005 MUL CX 0006 POP EBX main ENDP </pre>	<pre> f1 PROC 000C SHR CL, 1 000D INC EAX 000F ROL BX,2 0010 CALL f2 0011 ROR AX,CL 0012 ret f1 ENDP </pre>	<pre> f2 PROC 0017 MUL CX 0018 INC EDX 0019 PUSH EDX 001A PUSH ECX 001B POP EDX 001C POP ECX 001D ret f2 ENDP </pre>
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	EIP	ESP	EAX	EBX	ECX	EDX
After Instruction at 0004	000Ch	00FEh	0014h	000Ah	000Ah	0000h
After f2 completes execution	0011h	00FEh	0069h	0028h	0001h	0005h
After main completes execution		0106h	8034h	000Ah	0001h	0000h