EE213 Computer Organization and Assembly Language
Quiz II – FALL 2018 (Section B | D)
October 29th, 2018
Solution Paper-A

1. The DATE_OF_BIRTH field of a file directory entry uses bits 0 to 7 for the DAY, bits 8 to 15 for the MONTH, and bits 16 to 31 for the YEAR. Write instructions to copy the YEAR to a word variable wYEAR. **[4 Points]**

```
MOV     EAX, DATE_OF_BIRTH
MOV     EDX, 0
SHLD    EDX, EAX, 16
MOV     wYEAR, DX
```

2. Copy return address of a procedure into EBX. **[2 Points]**

```
main PROC                       f1 PROC
  CALL f1                         MOV EBX,[ESP]
  RET                             RET
main ENDP                       f1 ENDP
```

3. Write some code that should swap the top two elements (most recent two) on the stack, without disturbing ESP. **[2 Points]**

```
MOV EAX, [ESP]
MOV EBX, [ESP+4]
MOV [ESP], EBX
MOV [ESP+4], EAX
```

4. Given that multi-level encryption is implemented in the following code. Provide encrypted values in AX/AL after each encryption and write down working decryption key for each encryption. **[4 Points]**

```
MOV AL, 04h
MOV CL, AL
; encryption1
CBW
INC AH
XOR AX, 04h                 ; AX ?
; encryption2
ROL AH, CL
DEC CL
SHL AX, CL
TEST AX, 0FFFFh             ;AX?
```

```
; decryption2
        SHR AX, CL
        INC CL
        ROR AH, CL

; decryption1
        XOR AX, 04h
        DEC AH
```

5. Using recursion, calculate and display the 6^{th} positioned to 10^{th} positioned elements of Fibonacci Series, also draw out the stack (stack frame) for your code. [**4+2 Points**]
0,1,1,2,3,**5**,**8**,**13**,**21**,**34**

FREE RESPONSE