EE213 Computer Organization and Assembly Language
Quiz II (GR 2) – Spring 2019
March 29th, 2019
**Paper-A**
Student Name: _____ Roll#_____

**Solve the following questions.**

**1.** Implement the following pseudo-code in assembly language. Also, give the corresponding data definition directives: **[04 points]**

```
; All values are 16-bit unsigned integers
do {
      A = A%2;
      if (C %2 == A)
            B++;
      else
            C++;
            X = Y + 10;
      }
      while(B > C)
```

**Solution:**

```
L1:         MOV   AX, A
MOV         DL, 2
DIV         DL
MOVZX       A, DL       ;A = A%2

MOV         AX, C
MOV         DL, 2
DIV         DL          ;
MOVZX       DX, DL
CMP         DX, A       ;if (C%2 == A)
JNE         L2
INC         B
JMP         L3

L2:         INC   C     ;else
MOV         CX, Y
ADD         CX, 10
MOV         X, CX       ; X = Y + 10;


L3:         MOV   CX, C ;while
CMP         B, CX
JG          L1
RET
```

**2.** Provide the contents of registers/flags where indicated (in hex-decimal), after execution of the following instructions. **[2 Points]**

```
mov     al, 1Ah
sar     al, 3           ; AL = 03h      CF = 0

mov     al, 13h
ror     al, 74h         ; AL = 26h      CF = 0

mov     al, 9Bh
stc
rcl     al,5            ; AL = 79h      CF = 1

mov     al,AAh
shl     al,7            ; AL = 00h      CF = 1
```

**3.** Elaborate the difference between OR and XOR instructions through some working example. **[2 Points]**

```
MOV     AL, 1010 1100b
OR      AL, 0000 1111b          ;   AL = 1010 1111b

MOV     AL, 1010 1100b
XOR     AL, 0000 1111b          ;   AL = 1010 0011b
```