Quiz 5
CSC 3210
Spring 2022

Question 2. Set A
Consider the carry flag is 1 at the beginning. AL register contains A9h.

Perform the following instruction on AL.

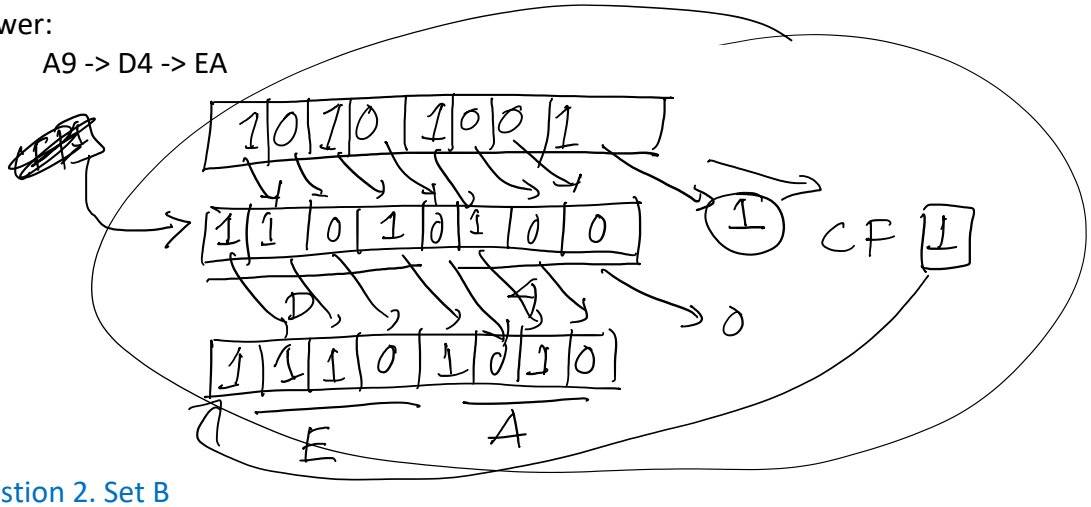
RCR AL, 2

Rotation with carry

Show what happens to AL register after each rotation with carry. No points if you do not explain the answer.

Answer:

A9 -> D4 -> EA



Question 2. Set B
Consider the carry flag is 1 at the beginning. AL register contains E7h.

Perform the following instruction on AL.

RCL AL, 2

Show what happens to AL register after each rotation with carry. No points if you do not explain the answer.

E7 -> CF -> 9F

Question 2. Set C

Consider the carry flag is 0 at the beginning. AL register contains E7h.

Perform the following instruction on AL.

ROL AL, 2

Show what happens to AL register after each rotation. **No points if you do not explain the answer.**

Answer:

E7 -> CF -> 9F

Question 2. Set D

Consider the carry flag is 1 at the beginning. AL register contains D3h.

Perform the following instruction on AL.

ROR AL, 2

Show what happens to AL register after each rotation. No points if you do not explain the answer.

Answer:

D3->E9->F4

Question 3. Set A
Compute the following expression:

var4 = (var1*var4) / (var2/var3)

All the variables are 32-bit long.

You can only use single operand IMUL and IDIV along with MOV, ADD, SUB, CDQ

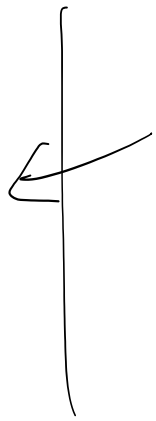
Answer:

```
mov eax, var2
cdq
idiv var3

mov ebx, eax

mov eax, var4
imul var1

idiv ebx
mov var4, ebx
```



Question 3. Set B
Compute the following expression:

var4 = (var1/var4) * (var2*var3)

All the variables are 32-bit long.

You can only use single operand IMUL and IDIV along with MOV, ADD, SUB, CDQ

Answer:

```
mov eax, var2
imul var3

mov ebx, eax
mov eax, var1
```

```
cdq
idiv var4
imul ebx

mov var4, eax
```

Question 3. Set C
Compute the following expression:

var4 = var4 / (var1*var2) + var3

All the variables are 32-bit long.

You can only use single operand IMUL and IDIV along with MOV, ADD, SUB, CDQ

Answer:

```
mov eax, var1
imul var2

mov ebx, eax

mov eax, var4
CDQ
idiv ebx

add eax, var3
mov var4, eax
```

Question 4. Set D
Compute the following expression:
var4 = var1- var4 / (var2*var3*var5)
All the variables are 32-bit long.
You can only use single operand IMUL and IDIV along with MOV, ADD, SUB, CDQ

Answer:

```
mov eax, var2
imul var3
imul var5

mov ebx, eax
mov eax, var4
CDQ
```

```
idiv ebx
sub var1, eax
mov ecx, var1
mov var4, ecx
```