**Namal University Mianwali**

**Department of Computer Science**

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| Course | CSC-241-L Computer Organization and Assembly Language | | |
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**Task 1:** Write the assembly language program given in the Lab handout, assemble it and run

it as per the instructions in the handout. CLO-1

**SOLUTION:**



**Task 2:** Note down the contents of registers EAX, EBX and ECX as displayed by the program. CLO-1

SOLUTION:

EAX = 30

EBX = 20  
ECX += EAX

ECX += EBX

**Task 3:** Do the contents of register ECX match the expected result? If not, what step needs to be taken? CLO-1

**SOLUTION:**

No, contents of register does not match the expected result . So to solve this problem first of all we should initialize the value of ECX to get its correct value.If we will not initialize value of ECX , then it will give a garbage value.

**Task 4:** Modify the source code to get the right result in the register ECX, re-assemble, and re-run the program. CLO-1

**SOLUTION:**

include \masm32\include\masm32rt.inc

.data

sumMessage db "The sum is: ", 0 ; String message to display before the sum

buffer db 11 dup(0) ; Buffer to hold the string representation of the sum (up to 10 digits plus null terminator)

.code

start:

; Initialize registers with values

mov eax, 30 ; Load 30 into register EAX

mov ebx, 20 ; Load 20 into register EBX

mov ecx, 0

add ecx, eax ; Add the value in EAX (30) to ECX (ECX = 30)

add ecx, ebx ; Add the value in EBX (20) to ECX (ECX = 30 + 20 = 50)

; Convert the value in ECX (the sum) to a string and store it in the buffer

invoke dwtoa, ecx, addr buffer

; Output the sumMessage ("The sum is: ") to the console

invoke StdOut, addr sumMessage

; Output the string in buffer (the sum as text) to the console

invoke StdOut, addr buffer

; Exit the program with a status code of 0

invoke ExitProcess, 0

end start

**Task 5:** Verify that the contents of the ECX register are now correct. CLO-1

**SOLUTION:**

