Lab 7 (50 points)

1. (10 points) Write assembly code to divide 625 by 25 in 32-bit mode. What are the values of CF and used registers before and after the division operation?

Ans:

Code

mov edx,0

mov eax,625

mov ecx,25

div ecx

registers before

CF = 0

edx = 0x0 0

eax = 0x271 625

ecx = 0x19 25

register after

CF = 0

edx = 0x0 0

eax = 0x19 25

ecx = 0x19 25

1. (10 points) Write assembly code to divide 4200 by -10 in 32-bit mode. What are the values of CF and used registers before and after the division operation?

Ans:

Code

mov eax,4200

cdq

mov ecx,-10

idiv ecx

register values before

CF = 0

edx = 0x0 0

eax = 0x1068 4200

ecx = 0xfffffff6 -10

register values after

CF =0

edx = 0x0 0

eax = 0xfffffe5c -420

ecx = 0xfffffff6 -10

1. (10 points) Write assembly code to multiply 234 by 124 in 32-bit mode. What are the values of CF and used registers before and after the division operation?

Ans:

mov eax, 234

mov edx, 0

mov ebx, 124

mul ebx

register values before

eax = 0xea 234

edx = 0x0 0

ebx = 0x7c 124

CF = 0

register values after

eax = 0x7158 29016

edx = 0x0 0

ebx = 0x7c 124

CF = 0

1. (10 points) Write assembly code to multiply 2575 by -123 in 32-bit mode. What are the values of CF and used registers before and after the division operation?

Ans: CODE

mov eax, 2575

mov ebx, -123

imul ebx

register values before

eax = 0xa0f 2575

ebx = 0xffffff85 -123

CF = 0

edx = 0x0 0

register values after

eax = 0xfffb2acb -316725

ebx = 0xffffff85 -123

CF = 0 | SF = 1

edx = 0xffffffff -1

1. (10 points) What will be the hexadecimal values of EDX, EAX, and the overflow flag after executing the following instructions?

mov eax, FFFFFFFF

mov ebx, FFFFFFFF

mul ebx

Ans:

edx 0xfffffffe -2

eax 0x1 1

CF = 1 | OF = 1