Lab 8 (50 points)

Your Name:

Q1 (10 points): Write the assembly code to execute the following:

1. save a value = 04F346BA2h in eax.
2. turn on 4 leftmost bits of second byte (from right) in eax

mov eax, 04F346BA2h 1001111001101000110101110100010

or eax, 4F346BBEH 1001111001101000110101110111110

What is the new value stored in eax?

4F346BBEh

Q2 (10 points): Write the assembly code to execute the following:

1. save a value = 04F346BA2h in eax.

mov eax, 04F346BA2 100 1111 0011 0100 0110 1011 1010 0010

1. save the 1’st complement of the first two bytes (from right) for the value stored in eax using XOR

100 1111 0011 0100 0110 1011 1010 0010

000 0000 0000 0000 0000 0000 0000 0011

100 1111 0011 0100 0110 1011 1010 0001

xor eax, 3h

What is the new value stored in eax? 4F34 6BA1

1. save the 1’st complement of the original value stored in eax using XOR

What is the new value stored in eax?

04F346BA2h 100 1111 0011 0100 0110 1011 1010 0010

7FFF FFFFh 111 1111 1111 1111 1111 1111 1111 1111

30CB 945Dh 011 0000 1100 1011 1001 0100 0101 1101

mov eax, 4F346BA2h

xor eax, 7FFFFFFFh

eax = 30CB945Dh

Q3 (10 points)

Which of these operations set the Overflow bit to 1? (Because we think of these as signed operations)

1. 00E3 + FF4F (use 2-byte quantities) 10022h 5 bits
2. F1 - 7A (use 1-byte quantities) 77h 2 bits

Q4 (10 points); What are the value of ax register after executing the following instructions

mov ax, 0C123h

and ax, 082F6h ; ax =8022h

or ax, E34Fh ; ax =E36Fh

xor ax, 036E9h ; ax = D586h

not ax ; ax =2A79h

Q5 (10 points): Shift AX 4 bits to the right and replace its highest 4 bits with the low 4 bits of DX register

Show your work bit by bit

mov ax, 234Bh ; ax = 234b 9035 1001 0000 0011 0101

mov dx, 7654h ; dx = 7654h 30292 0111 0110 0101 0100

shrd ax, dx, 4 ; dx = 7654h 30292 0111 0110 0101 0100

; ax = 4234h 16948 0100 0010 0011 0100