CSULB
CECS225
Lab3
Show your work
No work, no credit even if the answer is correct
Type your final answers

(Overflow occurs when the result of an addition/subtraction using 2's complement arithmetic is too large or too small to be expressed using the number of bits of the representation used. This results in the overflow flag OF being set to 1.)

1. Add the following unsigned 4-bit binary numbers to get a possible 5-bit result.

Addend 1	Addend 2	5-bit Binary Sum				
1001	0101					
1100	0110					
0011	1100					
0101	0111					
1011	0010					

2. Add the following signed 4-bit binary numbers. Indicate if there is overflow by setting the OF flag.

Addend 1	Addend 2	4-bit Binary Sum				OF
1001	0101					
1100	0110					
0011	1100					
0101	0111					
0001	1111					

3. Add the following decimals by adding their 8-bit 2's complement representations. Indicate if OF.

Addend 1	Addend 2	8-bit Binary Sum								OF
58	-100									
-35	-69									
89	75									
-126	-13									
-105	80									

4. Convert each decimal to 8-bit binary then find the negative 2's complement by going from the rightmost bit and inverting every digit beyond the first 1 found as you continue to the left.

Decimal	8-bit binary representation									2's complement value							
44																	
81																	
113																	
62																	
125																	

5. Perform the sum of pair of hexadecimal numbers (unsigned).

num1	num2	Sum
$6B4_{16}$	$3FE_{16}$	
$A49_{16}$	$6BD_{16}$	
$7C4_{16}$	$3BE_{16}$	
$B69_{16}$	$7AD_{16}$	

6. What is the sum of each pair of **12-bits binary signed numbers** represented in hexadecimal? Convert the result to its equivalent singed integer?

num1	num2	Sum	Decimal
$6B4_{16}$	$3FE_{16}$		
$A49_{16}$	$6BD_{16}$		
$7C4_{16}$	$3BE_{16}$		
$B69_{16}$	$7AD_{16}$		

7. Repeat 5 but perform the subtraction of each pair of **the 12-bits binary signed numbers** represented in hexadecimal.

num1	num2	Difference	Decimal
$6B4_{16}$	$3FE_{16}$		
$A49_{16}$	$6BD_{16}$		
$7C4_{16}$	$3BE_{16}$		
$B69_{16}$	$7AD_{16}$		

8. Write your initials in ASCII code decimal, hex, oct, binary and in Unicode

Initials	Dec	hex	Binary	Oct	Unicode

A floating-point decimal contains three components: a sign, a significand -**mantissa-** and an exponent. Single precision uses 32 bits.

9. Convert the following number to IEEE single-precision real

num																															
+10.75																															
−76.0625																															

10. Convert the following IEEE single-precision real numbers -given in Hex- to its Decimal equivalent
    41 86 00 00
    CD 32 A2 00