CS 362- Week 8

UIN:----------

Submission: Gradescope. You can: 1. Get a printout, solve it, scan it, and upload PDF. 2. Solve directly on the digital copy and upload. 3. Do it using pen and paper and upload scans. Please ensure the handwriting is legible in case of handwritten submission. Also please use gradescope's feature of selecting pages/sections for questions, and do not forget to write your UIN.

Marks: 100

1) Add/subtract the following binary numbers. And specify if an overflow occurs or not. The values of X,Y,Z in the numbers are based on the following table.

Last Digit of UIN	X	Y	Z
0 or 9	1	1	1
1 or 8	0	1	1
2 or 7	0	1	0
3 or 6	1	0	1
4 or 5	1	0	0

1.a) 1 1 1 1 1 X

\+ 1 0 1 Y 1 Z

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1.b) 1 1 0 0 Y 1 1 X

\+ Z 0 0 0 1 1 0 0

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1.c) 1 1 1 0 0 0 0 Y

\- 1 0 0 0 1 X Z 0

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2) Minimize a ripple - carry adder/subtractor to be a decrementer device (each time decrements X value) instead of a general adder/subtractor. The value of X is as follows.

Last digit of UIN	X
4,6,7	-1
1,2,5,0	-2
8,3,9	-3