Alexandria University
Faculty of Engineering
Computer and Systems Engineering Dept.
First Year

CS131: Digital Computer Fundamentals
Spring 2018
Due: Wednesday 14th Mar, 2018

Lab 3
Full Subtractor Circuit

Design a full subtractor that has three inputs: A, B and Bin and two outputs S and Bout. The circuit performs the operation A – B taking into consideration the borrow from the previous stage of subtraction Bin, and produces the result S and the borrow for the next stage Bout. The truth table of the circuit is as follows:

A	B	B_{in}	S	B_{out}
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	0	1
1	0	0	1	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

You should deliver a report containing the following:

1. Problem Statement
2. Truth Table
3. Deducing the formulas for S and B_{out} and minimization
4. Circuit Diagram
5. Chips Diagram
6. Chips Requirements & Assignment
7. Wiring List
8. Data sheets to be used

Hint: Only Three chips are enough

Policies:

- If 2 or more copies are discovered, all copies will lose submission marks and will be given a penalty of 25% of submission marks. Hence, it is better to deliver nothing than delivering a copy.
- You should follow the sample lab report.
- No late submission is allowed.