CSC 3101- Spring Summer 2016
Lab Assignment 2

Please read the requirements carefully. Any missing point will result in a grade reduction. The **deadline** is 11:00pm of the day before next class and this homework has to be submitted to your **blackboard**. Hand in paper is **not accepted**.
I **strongly suggest** you submit it at least 10 minutes **earlier** in case any kind of accidents would happen like network delay.

Question 1: (30)

Construct circuits that produce the following outputs using AND, OR and NOT gates (Do not simplify):

1) $(X + Y)\bar{X}$
2) $\bar{X}(\overline{Y + \bar{Z}})$
3) $\overline{\bar{X} + \bar{Z}}.X + \overline{Y.\bar{W}}$

Question 2: (30)

Draw a **single** circuit, using OR, AND, and NOT gates, to implement the two level logic versions of both of the following equations. The circuit should have four inputs (A, B, C, D) and two outputs (E, F) (Do not simplify).

1) $E = A + (B.\bar{C})$

2) $F = (A.C) + (A.D) + (B.C) + (B.D)$

Question 3: (40)

There is a circuit with four input gates A, B, C, D and two output gates X, Y. For the 16 different inputs from 0 to 15, they are evenly divided to four parts and match to 4 outputs from 0 to 3. It means that the output of first four inputs is 0, the output of second four inputs is 1, and so on. Please write down the truth table of this circuit, and the logical expressions of the outputs (do not simplify). Then, please draw the circuit, and run it to check the result.