

COE 202, Term 132

Digital Logic Design

Assignment# 1

Due date: Tuesday, April 1

- Q.1.** It is required to design a combinational circuit that computes the equation $Z=2*X+Y+2$, where X and Y are n-bit unsigned numbers.
- (i) Design the circuit as a modular circuit where each module receives a single bit of the input, X_i and a single bit of the input, Y_i
 - (ii) Derive the truth table of your 1-bit module in (i).
 - (iii) Derive minimized two-level sum-of-product equations for your 1-bit module circuit.
 - (iv) Verify the correctness of your design by modeling and simulating a 4-bit circuit using LogicWorks.

This assignment can be solved based on a group of two students. Include snapshots of simulation output to illustrate the correctness of your circuit. Submit your solution as a word document along with the circuit in one zipped file.