CS221 Digital Design (Dept of CSE, IIT Guwahati)

Quiz 2 Date 21st Aug 2018 Time 11.00AM to 11.40AM

Name: _____, Roll No:_____

1) [4 Marks] Implement Boolean Function $F(W, X,Y, Z)=\sum m(1, 3, 5, 7, 9, 13)$ with ***4x1*** multiplexers and other necessary basic gates .

2) [4 Marks] Write/Draw the prime implicants, essential implicants and non-essential implicants for the Boolean Function $F(W, X,Y, Z)=\sum m(0, 2, 3, 4, 6, 7, 9, 11, 12, 13, 15)$.

3) [2+2 Marks] Write delay complexity and area complexity of ***M x N*** bit array multipliers. Write delay complexity and area complexity of ***N*** bit ripple carry adder.

4) [3+3 Marks] Minimize the Boolean $F(W, X, Y, Z)=\sum m(1, 3, 5, 7, 9, 13, 15)+d(0,14)$ using Quine-McCluskey method. Derive all the required Cube tables and generate all the require covers and finally write the minimized Boolean Function.