Name: **Id#**

COE 200, Term 993
Fundamentals of Computer Engineering
Quiz# 3

Date: Tuesday, July 11

Q.1. Implement the following Boolean function $F(A, B, C, D)=\Sigma\, m(0, 3, 13, 14)$ using only:

(i) Four 2x4 decoders and three 2-input OR gates.

(ii) Four 2x1 multiplexers and two inverters.

Q.2. It is required to design a Combinational circuit that compares two n-bit numbers, $A=A_{n-1}$-A_0 and $B=B_{n-1}$-B_0, to see if A is **greater** than B or not. Design a circuit that has three inputs and one output, that can be used for each of the n bits, such that the circuit is connected in cascade by carry-like signals. One of the inputs to each circuit is a carry input, and the single output is a carry output. If the final output from the last circuit is 1, then this indicates that A is greater than B, otherwise A is less than or equal to B. Using this circuit, show the design of a 4-bit greater than comparator.