**Assignment 6**

**Question 1:**  
Construct a 16 X 1 multiplexer by using five 4x 1 multiplexers. Use block diagrams.

**Question 2:**  
Implement the following Boolean function with **a 8 x 1** multiplexer:

F(*A, B, C, D*) = Σ (0, 1, 3, 4, 8, 9, 15)

**Question 3:**  
a) Implement the following function, each using a mux of size 8:1

(i)*f1(x,y,z) =*∑*m(0,2,3,5,7)*

*(ii) f2(x,y,z) = y’+z*

*b)*Using**only one 3-to-8 decoder and as few as possible two-input gates** (INV, AND, OR, NAND, NOR, XOR)

*f1(x,y,z) =*∑*m(0,2,3,5,7)*

*f2(x,y,z) = y’+z*