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COE 202, Term 052
Fundamentals of Computer Engineering

Quiz# 3

Date: Saturday, March 18, 2006

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Q.1. Consider the following function **F(W,X,Y,Z)=W X Y' + W X Z' + W X Z + Y Z'**:

  a. **List the minterms of the function.**

  b. **Express the function in sum-of-minterms form.**

  c. **List the maxterms of the function.**

  d. **Express the function in product-of-maxterms form.**

  a. List of Minters:
      W X Y' = W X Y' (Z + Z') = W X Y' Z + W X Y' Z' = m13 + m12
      W X Z' = W X Z' (Y + Y') = W X Y Z' + W X Y' Z' = m14 + m12
      W X Z = W X Z (Y + Y') = W X Y Z + W X Y' Z = m15 + m13
      Y Z' = Y Z' (W + W') (X + X') = (W Y Z' + W' Y Z') (X + X') = W X Y Z' + W X'
      Y Z' + W' X Y Z' + W' X' Y Z' = m14 + m10 + m6 + m2

      Thus, the list of minterms = Σm(2,6,10,12,13,14,15)

  b. F = W' X' Y Z' + W' X Y Z' + W X' Y Z' + W X Y' Z' + W X Y' Z + W X Y Z' + W
      X Y Z

  c. List of Maxterms = ΠM(0,1,3,4,5,7,8,9,11)

  d. F=(W+X+Y+Z)(W+X+Y+Z')(W+X+Y'+Z')(W+X'+Y+Z)(W+X'+Y+Z')(W+X'+Y'+Z'
)(W'+X+Y+Z)(W'+X+Y+Z') (W'+X+Y'+Z')