Switching Circuits & Logic Design, Fall 2010

Quiz # 1 (10/21/2010, 2:20pm~3:10pm)

Problem 1: (15 points)

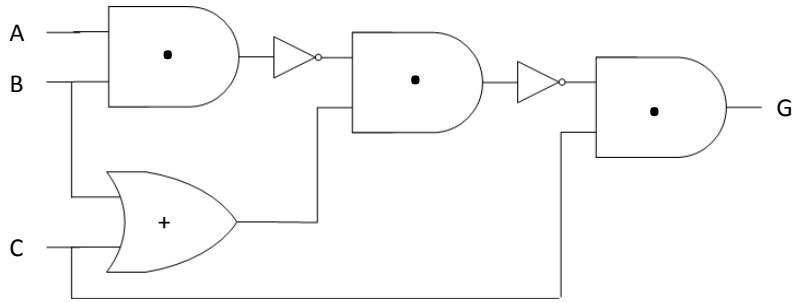
Convert the following base-8 number into a base-3 representation：**$(375.54)_8$**

Problem 2: (10 points)

Construct a table for 6-3-1-1 weighted code and write the following four digits, **9253,** using this code.

Problem 3: (15 points)

Find Boolean expression of logic function G and simplify it:



Problem 4: (15 points)

Factor the following logic expression, F, to obtain its minimum product of sums (POS) form.

F = A'C'D'+ABD'+A'CD+B'D

Problem 5: (25 points)

(a) Please draw the Karnaugh map of

F(A,B,C,D)= Σ m(1, 3, 9,11, 12, 14, 15) + Σ d(4, 5, 6, 7, 8). (10 points)

(b) Please show the minimum product of sums for F. (15 points)

Problem 6: (20 points)

Please use Karnaugh map to determine a minimum sum-of-products expression for *f(a,b,c,d,e) = (b+c+d')(a'+b'+c+e')(c+d+e')(a+c'+e')(a'+b+e)(a'+c+d)*