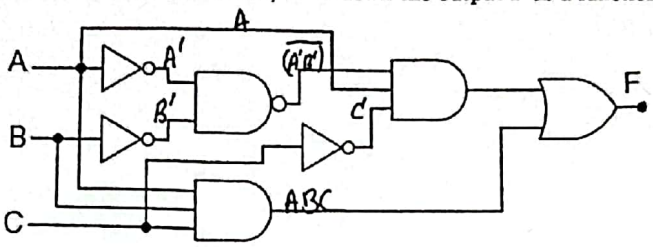
INFORMATION TECHNOLOGY UNIVERSITY, LAHORE, PAKISTAN

Digital Logic Design

Quiz# 3

Solution

1. For the circuit shown below, write down the output F as a function of the inputs A, B, C. [4]



2. Reduce the function obtained in Q. 1 to minimized SOP form. [3]

3. Draw the minimized function (Q. 2) using AND, OR and NOT gates. [3]

(i). $F = \overline{(\bar{A}\bar{B})}\,A\bar{C} + ABC.$

(ii). $F = (A'B')'\,AC' + ABC.$

Apply De Morgan's Theorem.

$= ((A')' + (B')')\,AC' + ABC$

$= (A + B)AC' + ABC \qquad \because (A')' = A.$

$= A.AC' + ABC' + ABC$

$= AC' + ABC' + ABC \qquad \because A.A = A$

$= AC' + AB(C + C')$

$= AC' + AB \qquad \because C + C' = 1$

(iii)