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# Digital Design

## First Semester 2020-21

### Tutorial : 11

## Memory and PLD

# Problem 1

**1. Realize the following logic functions with 8 X 4 PROMs.**

(i)  $F1 = AB + B'C$

(ii)  $F2 = (A+B'+C)(A'+B)$

(iii)  $F3 = A + BC$

# Problem 2

A Boolean function is defined by the truth table

$A$	$B$	$C$	$F_1$	$F_2$
0	0	0	0	0
0	0	1	0	0
0	1	0	0	0
0	1	1	0	1
1	0	0	1	0
1	0	1	1	1
1	1	0	0	0
1	1	1	1	1

(a) Truth table

Implement the circuit with a PLA having three inputs, three product terms and two outputs

## Problem 3

Considering the following Boolean functions,  
design a combinational circuit using a PAL:

$$w(A, B, C, D) = \sum (2, 12, 13)$$

$$x(A, B, C, D) = \sum (7, 8, 9, 10, 11, 12, 13, 14, 15)$$

$$y(A, B, C, D) = \sum (0, 2, 3, 4, 5, 6, 7, 8, 10, 11, 15)$$

$$z(A, B, C, D) = \sum (1, 2, 8, 12, 13)$$