JYOTHISHMATHI INSTITUTE OF TECHNOLOGY AND SCIENCE

TOPIC: Code Converters

Sub: Switching Theory and Logic Design

By

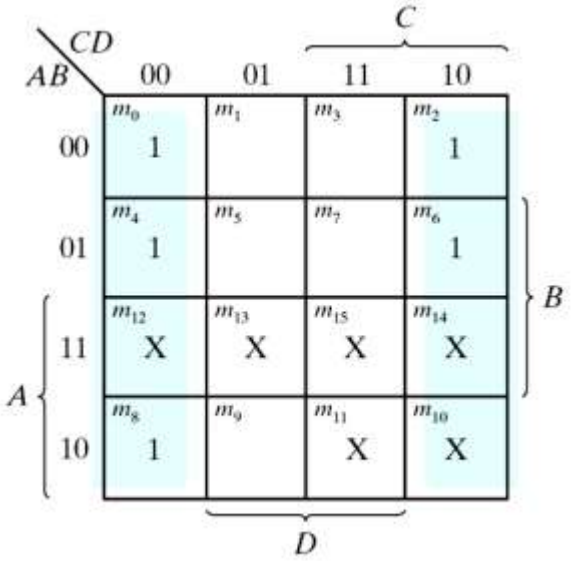
Nuthi.Raju
Asst.Prof
Dept. Of ECE.

BCD to Excess-3 Code Conversion

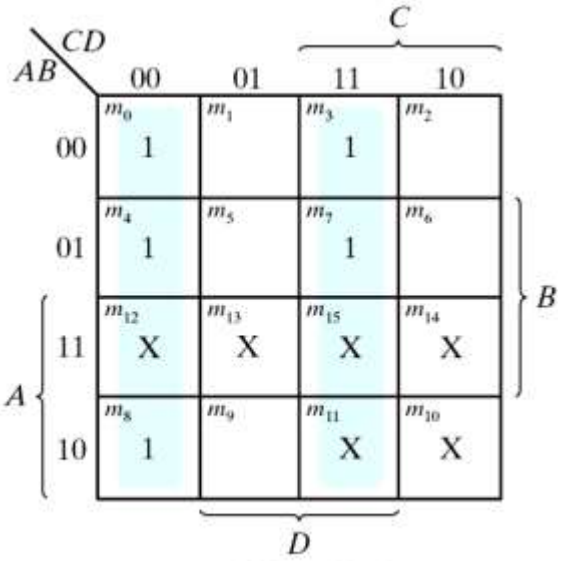
Table 4.2
Truth Table for Code-Conversion Example

Input BCD				Output Excess-3 Code			
A	*B*	*C*	*D*	*w*	*x*	*y*	*z*
0	0	0	0	0	0	1	1
0	0	0	1	0	1	0	0
0	0	1	0	0	1	0	1
0	0	1	1	0	1	1	0
0	1	0	0	0	1	1	1
0	1	0	1	1	0	0	0
0	1	1	0	1	0	0	1
0	1	1	1	1	0	1	0
1	0	0	0	1	0	1	1
1	0	0	1	1	1	0	0

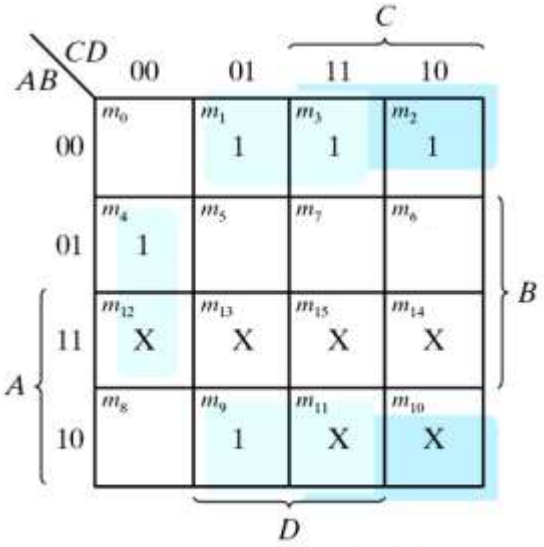
BCD to Excess-3 Code Conversion



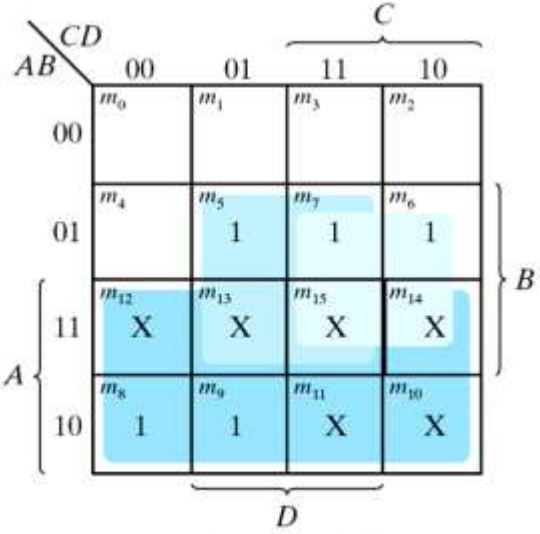
$z = D'$



$y = CD + C'D'$



$x = B'C + B'D + BC'D'$



$w = A + BC + BD$

BCD to Excess-3 Code Conversion

- Simplified functions
  - = D'
  - z = CD +C'D'
  - y = B'C + B'D+BC'D'
  - x
  - w = A+BC+BD
- Efficient implementation
  - z = D'
  - y x = CD +C'D'= CD + (C+D)‘
  - w = B'C + B'D+BC'D‘ = B'(C+D) +B(C+D)'
  - = A+BC+BD= A+ B(C+D)

Logic Diagram for BCD to Excess-3 Code Converter