



CYPRUS INTERNATIONAL UNIVERSITY
FACULTY OF ENGINEERING
CMPE226 / ISYE226 / ITEC226 / COMP122
Computer Architecture and Organization
Spring 2019/2020
Homework #5

Due Date : 19 / 05 / 2020, 23:59

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Implement the function $F(A, B, C, D) = \sum m(1, 3, 4, 5, 6, 9, 12, 14, 15)$ using 3×8 decoder(s) with active high enable inputs.

Truth Table

Minterm	A	B	C	D	F
M0	0	0	0	0	0
M1	0	0	0	1	1
M2	0	0	1	0	0
M3	0	0	1	1	1
M4	0	1	0	0	1
M5	0	1	0	1	1
M6	0	1	1	0	1
M7	0	1	1	1	0
M8	0	0	0	0	0
M9	1	0	0	1	1
M10	1	0	1	0	0
M11	1	0	1	1	0
M12	1	1	0	0	1
M13	1	1	0	1	0
M14	1	1	1	0	1
M15	1	1	1	1	1

Decoder Truth Table

Minterm	A	B	C	D	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15
M0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M3	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
M4	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
M5	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
M6	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
M7	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
M8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M9	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M10	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M11	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M12	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M13	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M14	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M15	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Logic Diagram



