

# EECE 320 - Assignment 4 - solution

①

## Problem 1

A	B	C	$O_5$	$O_4$	$O_3$	$O_2$	$O_1$
0	0	0	0	0	0	1	1
0	0	1	0	0	1	1	0
0	1	0	0	1	0	0	1
0	1	1	0	1	1	0	0
1	0	0	0	1	1	1	1
1	0	1	1	0	0	1	0
1	1	0	1	0	1	0	1
1	1	1	1	1	0	0	0

AB  
CD

		1	
		1	1

$$O_5 = AB + AC$$

AB  
CD

	1		1
	1	1	

$$O_4 = A'B + C + AB'C'$$

AB  
CD

		1	1
1	1		

$$O_3 = AC' + CA'$$

$$O_2 = B'$$

$$O_1 = C'$$

# Problem 2

(2)

output

	A	B	C	D	M	N	O	P	Q
	0	0	0	0	0	0	0	0	0
	0	0	0	1	0	0	0	1	0
	0	0	1	0	0	0	1	0	0
	0	0	1	1	0	0	1	1	0
	0	1	0	0	0	1	0	0	0
	0	1	0	1	1	0	0	0	0
	0	1	1	0	1	0	0	1	0
	0	1	1	1	1	0	1	0	0
	1	0	0	0	1	0	1	1	0
	1	0	0	1	1	1	0	0	0

$Q = 0$

CD AB

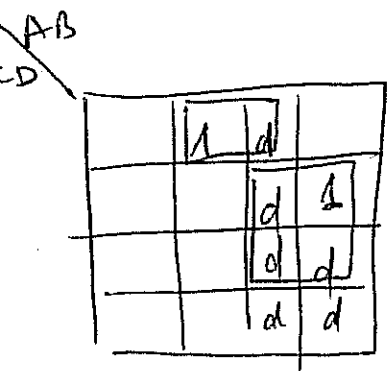
		d	1
1		d	
1		d	d
	1	d	d

$$P = AD' + CBD' + A'B'D$$

AB D

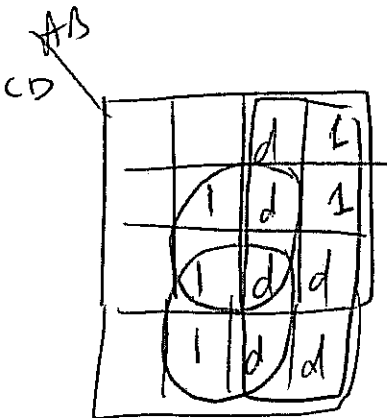
		d	1
		d	
1	1	d	d
1		d	d

$$O = CD + AD' + CB$$



$$N = AD + BC'D'$$

(3)



$$M = A + BD + BC$$

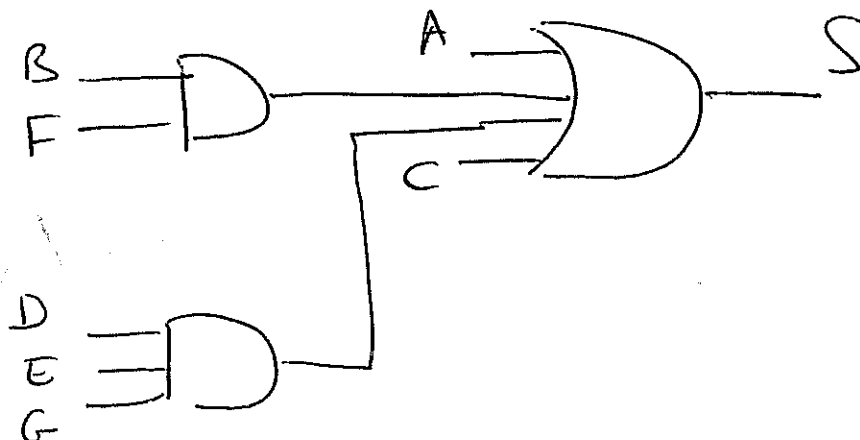
### Problem 3

Assume  $X = A + BF + C$

$$S = (X + D)(X + E)(X + G)$$

$$= X + DEG$$

$$= A + BF + C + DEG$$



# Problem 4

④

$$F' =$$

$\begin{matrix} WX \\ YZ \end{matrix}$

1	1	d	1
	1	d	1
		1	1
1		1	1

$$F' = W + XY' + X'Z'$$

$$F = (F')' = W' (X' + Y) (X + Z)$$

# Problem 5

$$F = X'Y'Z' + WXYZ$$

$$F =$$

$\begin{matrix} WX \\ YZ \end{matrix}$

1	0	0	1
0	0	0	0
0	0	1	0
0	0	0	0

$$F = (Y' + Z)(X + Z')(X' + Y)(W + \cancel{X'})$$