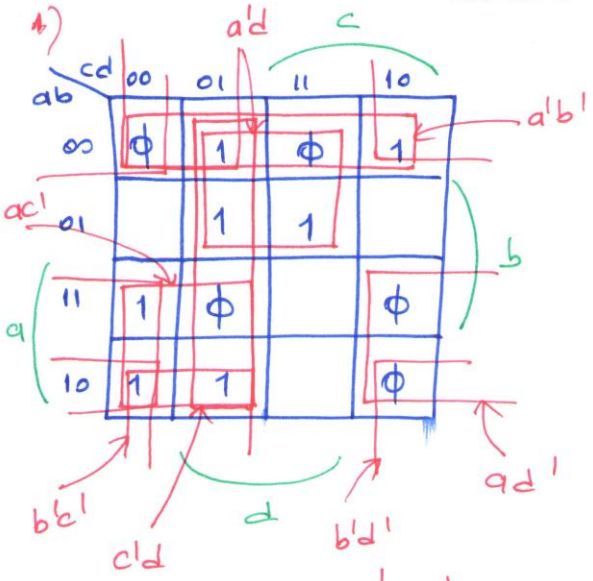
HW#3 SOLUTION

01.11.2012

1)



c'd , a'b', a'd , ac', ad', b'd', b'c

A	B	C	D	E	F	G
(5)	(6)	(5)	(5)	(5)	(6)	(6)
1,5,9	1,2	1,5,7	8,9,12	8,12	2,8	1,8,c

40 pts

2)

	1	2	5	7	8	9	12	cost
A	X		X			X		5
B	X	X						6
✓ C	X		X	X				5
D					X	X	X	5
E					X		X	5
F		X			X			6
G	X				X	X		6

7 is the distinguished point
C is the prime implicant.

35 pts

	2	8	9	12	cost
~~A~~			X		~~5~~
B	X				6
✓ D		X	X	X	5
~~E~~		X			~~5~~
F	X	X			6
~~G~~		X	X		~~6~~

D covers A, E and G, with equal or less cost.
B and F have equal cost.
Both can be used.

f = C + D + B or f = C + D + F

f = a'd + ac' + a'b' or f = a'd + ac' + b'c

5 + 5 + 6 = 16 cost

3) Both functions have the same cost, but first one can be implemente with one gate less.

25 pts