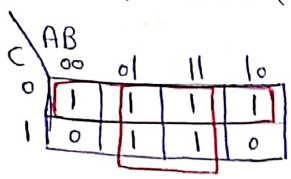
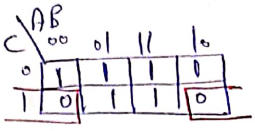
$f_1(a,b,c) = \Sigma m(0,1,3,5,6,7)$

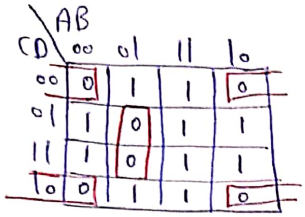


SOP: $B + C'$

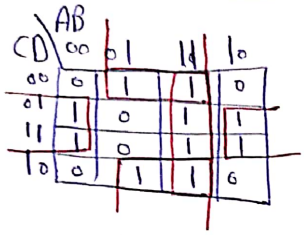


POS: $(B + C')$

$f_2(a,b,c,d) = \Pi M(0,1,3,5,7,8,10)$

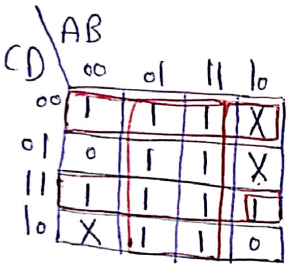


POS: $(A + B' + D')$ [illegible] $(B + D)$



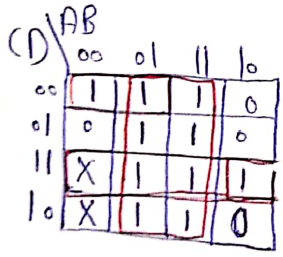
SOP: $AB + B'D + B\,D'$

$f_3(a,b,c,d) = \Sigma m(0,3,4,5,6,7,8,11,12,13,14,15) + d(1,9,10)$



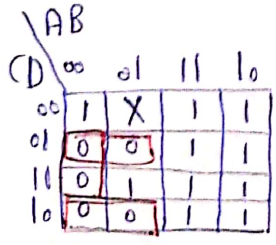
SOP: $B + C'D' + CD$ POS: $(B + C' + D)$ [illegible] $(B + C + D')$

$f_4(a,b,c,d) = \Sigma m(0,2,5,7,8,11,12,13,14,15) + d(1,3)$

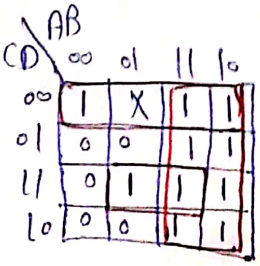


SOP: [illegible]$B + CD + A'C'D'$ POS: $(A' + B + C)(A' + B + D)(B + C + D')$

$f_5(a,b,c,d) = \Pi M(1,2,3,5,7) \cdot D(4)$



POS: $(A + C' + D)(A + B + D')(A + C + D')$



SOP: $A + C'D' + BCD$

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سؤال ۲)

$f_1(a,b,c,d) = ac + bd + ab'd'$

CD \ AB	00	01	11	10
00	0	0	0	1
01	0	1	1	0
11	0	1	1	1
10	0	0	1	1

$f_2(a,b,c,d) = ab'd' + ab + a'bc'$

CD \ AB	00	01	11	10
00	0	1	1	1
01	0	1	1	0
11	0	0	1	0
10	0	0	1	1

$f_3(a,b,c,d) = bd + ab'd' + acd + abc$

CD \ AB	00	01	11	10
00	0	0	0	1
01	0	1	1	0
11	0	1	1	1
10	0	0	1	1

$f_4(a,b,c,d) = ac + ab'c'd' + a'bd + bc'd$

CD \ AB	00	01	11	10
00	0	0	0	1
01	0	1	1	0
11	0	1	1	1
10	0	0	1	1

$f_5(a,b,c,d) = (b+d')(a+b)(a+c')$

CD \ AB	00	01	11	10
00	0	1	1	1
01	0	1	1	0
11	0	0	1	0
10	0	0	1	1

$f_1 \simeq f_3 \simeq f_4$

$f_2 \simeq f_5$

مطابق جداول کارنوی رسم شده f_1, f_3, f_4 با هم معادلند و f_2 و f_5 هم با هم معادلند.

سؤال ۳) الف)

$f(a,b,c) = a + a'c + a'b + a'bc \rightarrow f(a,b,c) = (a')(a+c')(a+b')(a+b'+c')$

c \ ab	00	01	11	10
0	1	0	0	0
1	0	0	0	0

SOP: $a'b'c'$

$f(a,b,c,d) = cd' + ab'cd + c'd' + a'b$

CD \ AB	00	01	11	10
00	1	1	1	1
01	0	1	0	0
11	0	1	0	1
10	1	1	1	1

SOP: $d' + a'b + ab'c$

$f(a,b,c,d) = a'd + ab'd' + bd + a'd' \rightarrow f(a,b,c,d) = (a+d')(a'+b+d)(b'+d')(a+d)$

CD \ AB	00	01	11	10
00	1	1	0	1
01	1	1	1	0
11	1	1	1	0
10	1	1	0	1

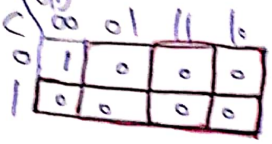
$\longrightarrow$

CD \ AB	00	01	11	10
00	0	0	1	0
01	0	0	0	1
11	0	0	0	1
10	0	0	1	0

SOP: $a'bd + abd'$

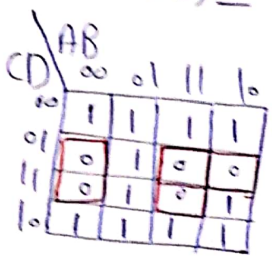
(4

$f'(a,b,c) = a + a'c + a'b + a'bc \longrightarrow f(a,b,c) = (a')(a+c')(a+b')(a+b'+c')$



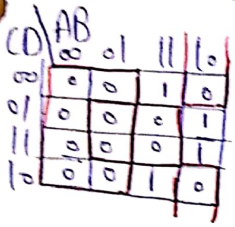
Pos: $(c')(a')(b')$

$f(a,b,c,d) = cd' + ab'cd + c'd' + a'b$



Pos: $(a+b+d')(a'+b'+d')(a'+c+d')$

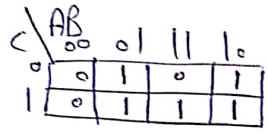
$f'(a,b,c,d) = a'd + ab'd' + bd + a'd' \longrightarrow f(a,b,c,d) = (a+d')(a'+b+d)(b'+d')(a+d)$



Pos: $(a)(b'+d')(a'+b+d)$

(5?

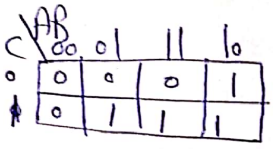
$f_1(a,b,c) = A'B + BC + AC + AB'$



minterms: $\sum m(1,3,5,6,7) = m_1 + m_3 + m_5 + m_6 + m_7 = A'B + BC + AC + AB'$

maxterms: $\prod M(0,1,4) = M_0 + M_1 + M_4 = (A+B)(A+B+C')$

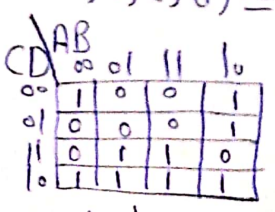
$f_2(a,b,c) = (A+B)(B'+C)$



minterms $= \sum m(3,5,6,7) = m_3 + m_5 + m_6 + m_7 = BC + AB'$

maxterms $= \prod M(0,1,2,4) = M_0 + M_1 + M_2 + M_4 = (A+B)(B'+C)$

$f_3(a,b,c,d) = (B'+C)(A+C+D')(A+B+D')(B+C'+D')$



minterms $= \sum m(0,2,4,7,8,9,10,12,15) = BC + CD' + AB'C' + B'C'D'$

maxterms $= \prod M(1,3,5,6,11,13,14) = M_1 + M_3 + M_5 + M_6 + M_{11} + M_{13} + M_{14}$

$= (B'+C)(A+B+D')(B+C'+D')$

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ج۵)

$[(B'+E')+A'][C'E'+D']=1 \longrightarrow B'C'E'+B'D'+C'E'+D'E'+A'C'E'+A'D'$

$E=0$

CD \ AB	00	01	11	10
00	1	1	1	1
01	1	1	1	1
11	0	0	0	0
10	1	1	1	1

$E=1$

CD \ AB	00	01	11	10
00	1	1	0	1
01	0	0	0	0
11	0	0	0	0
10	1	1	0	1

minterms : $\sum m$ (۰، ۱، ۲، ۴، ۵، ۶، ۸، ۹، ۱۰، ۱۲، ۱۳، ۱۴، ۱۶، ۱۸، ۲۴، ۲۶)

فرم ساده شده : $BD'' + C'E' + D'E' + A'D' = 1$

مجموعه جواب : (X0X0X), (XX0X0), (XXX00), (0XX0X)