5.domača naloga – rešitve

Naloga 1:

a) $f(x_1, x_2, x_3, x_4) = \&^4(15, 11, 7, 4, 3, 0)$, **MNO = MKNO**

      a) $f(x_1, x_2, x_3, x_4) = \overline{x_1}. \, x_3 \vee \overline{x_3}. x_4 \vee x_3.\overline{x_4}$, **MDNO: [4, 9]**

      b) $f(x_1, x_2, x_3, x_4) = \overline{x_1}. \, x_4 \vee \overline{x_3}. x_4 \vee x_3.\overline{x_4}$, **MDNO: [4, 9]**

      $f(x_1, x_2, x_3, x_4) = (\overline{x_1} \vee \overline{x_3} \vee \overline{x_4}).(x_3 \vee x_4)$, **MKNO: [3, 7]**

b) $f(x_1, x_2, x_3, x_4) = \&^4(15, 12, 11, 10, 8, 7, 5, 3, 1)$, **MNO = MDNO**

      $f(x_1, x_2, x_3, x_4) = x_1. \, x_4 \vee \overline{x_2}.\overline{x_3}. x_4 \vee \overline{x_1}. x_3.\overline{x_4}$, **MDNO: [4, 11]**

      a) $f(x_1, x_2, x_3, x_4) = (\overline{x_1} \vee x_4).(x_3 \vee x_4).(x_1 \vee \overline{x_3} \vee \overline{x_4}).(x_1 \vee \overline{x_2} \vee x_3)$, **MKNO: [5, 14]**

      b) $f(x_1, x_2, x_3, x_4) = (\overline{x_1} \vee x_4).(x_3 \vee x_4).(x_1 \vee \overline{x_3} \vee \overline{x_4}).(x_1 \vee \overline{x_2} \vee \overline{x_4})$, **MKNO: [5, 14]**

c) $f(x_1, x_2, x_3, x_4) = \&^4(15, 14, 11, 7, 6, 5, 4, 3)$, **MNO = MDNO = MKNO**

      $f(x_1, x_2, x_3, x_4) = x_2. \, x_4 \vee x_2. \, x_3 \vee \overline{x_1}.x_3$, **MDNO: [4, 9]**

      $f(x_1, x_2, x_3, x_4) = (\overline{x_1} \vee x_2). \, (x_3 \vee x_4). \, (x_2 \vee x_3)$, **MKNO: [4, 9]**

d) $f(x_1, x_2, x_3, x_4) = \&^4(15, 14, 10, 8, 6, 3, 2, 1, 0)$, **MNO = MDNO**

      $f(x_1, x_2, x_3, x_4) = \overline{x_2}. \, x_3 \vee x_1.\overline{x_2}.\overline{x_4} \vee \overline{x_1}.x_2.\overline{x_4}$, **MDNO: [4, 11]**

      $f(x_1, x_2, x_3, x_4) = (\overline{x_2} \vee \overline{x_4}). \, (\overline{x_1} \vee \overline{x_2}). \, (x_3 \vee \overline{x_4}).(x_1 \vee x_2 \vee x_3)$, **MKNO: [5, 13]**

Naloga 2:

a) $f(x_1, x_2, x_3, x_4, x_5) =$

$\vee^5 (2, 3, 4, 5, 10, 11, 12, 13, 16, 18, 19, 20, 21, 26, 27, 28) \vee^5_? (6, 7, 14, 15, 29)$, **MNO = MDNO**

      a) $f(x_1, x_2, x_3, x_4, x_5) = x_1.\overline{x_2}.\overline{x_3}.\overline{x_5} \vee \overline{x_3}.x_4 \vee x_3.\overline{x_4}$, **MDNO: [4, 11]**

      b) $f(x_1, x_2, x_3, x_4, x_5) = x_1.\overline{x_2}.\overline{x_4}.\overline{x_5} \vee \overline{x_3}. \, x_4 \vee x_3\overline{x_4}$, **MDNO: [4, 11]**

      $f(x_1, x_2, x_3, x_4, x_5) = (\overline{x_3} \vee \overline{x_4}). \, (x_3 \vee x_4 \vee \overline{x_5}). \, (\overline{x_2} \vee x_3 \vee x_4).(x_1 \vee x_3 \vee x_4)$, **MKNO: [5, 15]**

b) $f(x_1, x_2, x_3, x_4, x_5) =$

$\vee^5 (0, 1, 3, 8, 10, 11, 17, 20, 21, 25, 26, 27, 28, 30, 31) \vee^5_? (2, 6, 9, 29)$, **MNO = MKNO**

$\qquad f(x_1, x_2, x_3, x_4, x_5) = \overline{x_1}.\overline{x_3} \vee x_1.x_2.x_4 \vee x_1.x_3.\overline{x_4} \vee x_1.\overline{x_4}.x_5$, **MDNO: [5, 15]**

$\qquad f(x_1, x_2, x_3, x_4, x_5) == (x_1 \vee \overline{x_3}).(\overline{x_1} \vee x_2 \vee \overline{x_4}).(\overline{x_1} \vee x_3 \vee x_4 \vee x_5)$, **MKNO: [4, 12]**

c) $f\left(x_1, x_2, x_3, x_4, x_5\right) =$

$\vee^5 (0, 1, 5, 7, 8, 9, 10, 13, 22, 23, 26, 30, 31) \vee^5_? (2, 18, 19, 27, 28)$, **MNO = MDNO = MKNO**

$\qquad$ **a)** $f(x_1, x_2, x_3, x_4, x_5) = \overline{x_1}.\overline{x_3}.\overline{x_5} \vee x_1.x_4 \vee \overline{x_1}.\overline{x_4}.x_5 \vee \overline{x_2}.x_3.x_4.x_5$, **MDNO: [5, 16]**

$\qquad$ **b)** $f(x_1, x_2, x_3, x_4, x_5) = \overline{x_1}.\overline{x_3}.\overline{x_5} \vee x_1.x_4 \vee \overline{x_1}.\overline{x_4}.x_5 \vee \overline{x_1}.\overline{x_2}.x_3.x_5$, **MDNO: [5, 16]**

$\qquad$ **MKNO: [5, 16]**

$\qquad$ **a)** $f(x_1, x_2, x_3, x_4, x_5) = (x_1 \vee \overline{x_3} \vee x_5).(\overline{x_1} \vee x_4).(x_1 \vee \overline{x_2} \vee \overline{x_4} \vee \overline{x_5}).(x_2 \vee x_3 \vee \overline{x_4})$

$\qquad$ **b)** $f(x_1, x_2, x_3, x_4, x_5) = (x_1 \vee \overline{x_3} \vee x_5).(\overline{x_1} \vee x_4).(x_1 \vee \overline{x_2} \vee \overline{x_4} \vee \overline{x_5}).(x_3 \vee \overline{x_4} \vee \overline{x_5})$

$\qquad$ **c)** $f(x_1, x_2, x_3, x_4, x_5) = (x_1 \vee \overline{x_3} \vee x_5).(\overline{x_1} \vee x_4).(x_1 \vee \overline{x_2} \vee \overline{x_3} \vee \overline{x_4}).(x_3 \vee \overline{x_4} \vee \overline{x_5})$