Seminar LC 2 – Exerciții

A. Demonstrați, folosind tabelul de adevăr, dacă următoarele identități sunt adevărate:

(1)

$$(\bar{x}_1 + x_2)(\bar{x}_2 + \bar{x}_3\bar{x}_4) = \bar{x}_1\bar{x}_2 + (\bar{x}_1 + x_2)\bar{x}_3\bar{x}_4.$$

(2)

$$\bar{x}_1x_3 + x_2(\bar{x}_1 + \bar{x}_4) = \bar{x}_1x_3 + \bar{x}_1x_2 + x_2\bar{x}_4.$$

(3)

$$\overline{\bar{x}_1x_4 + \bar{x}_2\bar{x}_3} = (x_1 + \bar{x}_4)(x_2 + x_3).$$

(4)

$$\overline{x_1\bar{x}_3 + \bar{x}_1\bar{x}_2x_4} = \bar{x}_1(x_2 + \bar{x}_4) + x_3(x_1 + x_2 + \bar{x}_4).$$

(5)

$$x_1\bar{x}_2x_3 + \bar{x}_2(\bar{x}_1\bar{x}_2x_3 + \bar{x}_4) = \bar{x}_2x_3 + \bar{x}_2\bar{x}_4.$$

(6)

$$\overline{x_1\bar{x}_3\bar{x}_4 + \bar{x}_1x_2} = \bar{x}_1\bar{x}_2 + (x_1 + \bar{x}_2)(x_3 + x_4).$$

B. Să se obțină, pe cale analitică, FCD respectiv FCC pentru funcțiile de mai jos.

FCD

(1)

$$f(x_1, x_2, x_3) = \bar{x}_1 + x_2\bar{x}_3 + \bar{x}_1x_3.$$

(2)

$$f(x_1, x_2, x_3) = x_1(\bar{x}_2 + \bar{x}_3) + x_1x_2\bar{x}_3.$$

(3)

$$f(x_1, x_2, x_3) = x_1\bar{x}_2 + x_3 + \bar{x}_1x_2\bar{x}_3.$$

(4)

$$f(x_1, x_2, x_3) = x_1(\bar{x}_2 + x_3) + \bar{x}_2\bar{x}_3.$$

(5)

$$f(x_1, x_2, x_3) = \bar{x}_2 x_3 + x_1 + \bar{x}_1 \bar{x}_2 \bar{x}_3.$$

FCC

(1)

$$f(x_1, x_2, x_3) = (\bar{x}_1 + x_2 + x_3)(x_1 + \bar{x}_2).$$

(2)

$$f(x_1, x_2, x_3) = x_1(\bar{x}_2 + \bar{x}_3)(x_1 + \bar{x}_3).$$

(3)

$$f(x_1, x_2, x_3) = (x_1 + \bar{x}_3)(\bar{x}_1 + x_2)\bar{x}_3.$$

(4)

$$f(x_1, x_2, x_3) = (\bar{x}_1 + x_2)(\bar{x}_2 + \bar{x}_3)(\bar{x}_1 + x_3).$$

(5)

$$f(x_1, x_2, x_3) = (x_1 + \bar{x}_2 + x_3)(x_2 + \bar{x}_3)x_2.$$