Практическая работа №5

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12 января 2019 г.

Вар 2

Дана функция(ДНФ): $(\bar{A} \wedge B) \vee (B \wedge \bar{C} \wedge \bar{D}) \vee (B \wedge D \wedge \bar{A})$

№	A	B	C	D	F_1	F_2	F_3	F	СДНФ	СКНФ
0	0	0	0	0	0	0	0	0	0	$A \vee B \vee C \vee D$
1	0	0	0	1	0	0	0	0	0	$A \vee B \vee C \vee \bar{D}$
2	0	0	1	0	1	0	0	1	$\bar{A} \wedge \bar{B} \wedge C \wedge \bar{D}$	0
3	0	0	1	1	1	0	0	1	$\bar{A} \wedge \bar{B} \wedge C \wedge D$	0
4	0	1	0	0	0	0	0	0	0	$A \vee \bar{B} \vee C \vee D$
5	0	1	0	1	0	0	1	1	$\bar{A} \wedge B \wedge \bar{C} \wedge D$	0
6	0	1	1	0	1	0	0	1	$\bar{A} \wedge B \wedge C \wedge \bar{D}$	0
7	0	1	1	1	1	0	1	1	$\bar{A} \wedge B \wedge C \wedge D$	0
8	1	0	0	0	0	0	0	0	0	$\bar{A} \vee B \vee C \vee D$
9	1	0	0	1	0	0	0	0	0	$\bar{A} \vee B \vee C \vee D$
10	1	0	1	0	0	0	0	0	0	$\bar{A} \vee B \vee \bar{C} \vee D$
11	1	0	1	1	0	0	0	0	0	$\bar{A} \vee B \vee \bar{C} \vee \bar{D}$
12	1	1	0	0	0	1	0	1	$A \wedge B \wedge \bar{C} \wedge \bar{D}$	0
13	1	1	0	1	0	0	0	0	0	$\bar{A} \vee \bar{B} \vee C \vee \bar{D}$
14	1	1	1	0	0	0	0	0	0	$\bar{A} \vee \bar{B} \vee \bar{C} \vee D$
15	1	1	1	1	0	0	0	0	0	$\bar{A} \vee \bar{B} \vee \bar{C} \vee \bar{D}$

Таблица 1: Таблица истинности

Формулы:

СДНФ: $F = (\bar{A} \wedge \bar{B} \wedge C \wedge \bar{D}) \vee (\bar{A} \wedge \bar{B} \wedge C \wedge D) \vee (\bar{A} \wedge B \wedge \bar{C} \wedge D) \vee (\bar{A} \wedge B \wedge C \wedge \bar{D}) \vee (A \wedge B \wedge \bar{C} \wedge \bar{D})$

СКНФ: $F = (A \wedge B \wedge C \wedge D) \vee (A \wedge B \wedge C \wedge \bar{D}) \vee (A \wedge \bar{B} \wedge C \wedge D) \vee (\bar{A} \wedge B \wedge C \wedge D) \vee (\bar{A} \wedge B \wedge C \wedge \bar{D}) \vee (\bar{A} \wedge B \wedge \bar{C} \wedge D) \vee (\bar{A} \wedge B \wedge \bar{C} \wedge \bar{D}) \vee (\bar{A} \wedge \bar{B} \wedge C \wedge \bar{D}) \vee (\bar{A} \wedge \bar{B} \wedge \bar{C} \wedge D) \vee (\bar{A} \wedge \bar{B} \wedge \bar{C} \wedge \bar{D})$

$F = \sum_{0}^{6} (3, 4, 6, 7, 8, 13)$

$F = \prod_{0}^{9} (1, 2, 3, 5, 6, 7, 8, 12, 15, 16)$

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Карты Карно

Для СДНФ: F=$(\bar{A} \wedge \bar{B} \wedge C \wedge \bar{D}) \vee (\bar{A} \wedge \bar{B} \wedge C \wedge D) \vee (\bar{A} \wedge B \wedge \bar{C} \wedge D) \vee (\bar{A} \wedge B \wedge C \wedge \bar{D}) \vee (A \wedge B \wedge \bar{C} \wedge \bar{D})$

Для СКНФ: F=$(A \wedge B \wedge C \wedge D) \vee (A \wedge B \wedge C \wedge \bar{D}) \vee (A \wedge \bar{B} \wedge C \wedge D) \vee (\bar{A} \wedge B \wedge C \wedge D) \vee (\bar{A} \wedge B \wedge C \wedge \bar{D}) \vee (\bar{A} \wedge B \wedge \bar{C} \wedge D) \vee (\bar{A} \wedge B \wedge \bar{C} \wedge \bar{D}) \vee (\bar{A} \wedge \bar{B} \wedge C \wedge \bar{D}) \vee (\bar{A} \wedge \bar{B} \wedge \bar{C} \wedge D) \vee (\bar{A} \wedge \bar{B} \wedge \bar{C} \wedge \bar{D})$