

# Практическая работа №5

студент: Лоскутов Д.А группы 8871

11 января 2019 г.

Дана функция (ДНФ):

$$F = ABC\bar{D} + \bar{A}BC + \bar{D}$$

|       |    |      |    |    |             |
|-------|----|------|----|----|-------------|
|       |    | → CD |    |    |             |
| AB/CD | 00 | 01   | 10 | 11 |             |
| 00    | 1  | 0    | 0  | 1  | 0 1 2 3     |
| 01    | 1  | 0    | 1  | 1  | 4 5 6 7     |
| 10    | 1  | 0    | 0  | 1  | 8 9 10 11   |
| 11    | 1  | 0    | 0  | 1  | 12 13 14 15 |

| №  | A | B | C | D | $ABC\bar{D}$ | $\bar{A}BC$ | F |
|----|---|---|---|---|--------------|-------------|---|
| 0  | 0 | 0 | 0 | 0 | 0            | 0           | 1 |
| 1  | 0 | 0 | 0 | 1 | 0            | 0           | 0 |
| 2  | 0 | 0 | 1 | 0 | 0            | 0           | 1 |
| 3  | 0 | 0 | 1 | 1 | 0            | 0           | 0 |
| 4  | 0 | 1 | 0 | 0 | 0            | 0           | 1 |
| 5  | 0 | 1 | 0 | 1 | 0            | 0           | 0 |
| 6  | 0 | 1 | 1 | 0 | 0            | 1           | 1 |
| 7  | 0 | 1 | 1 | 1 | 0            | 1           | 1 |
| 8  | 1 | 0 | 0 | 0 | 0            | 0           | 1 |
| 9  | 1 | 0 | 0 | 1 | 0            | 0           | 0 |
| 10 | 1 | 0 | 1 | 0 | 0            | 0           | 1 |
| 11 | 1 | 0 | 1 | 1 | 0            | 0           | 0 |
| 12 | 1 | 1 | 0 | 0 | 1            | 0           | 1 |
| 13 | 1 | 1 | 0 | 1 | 0            | 0           | 0 |
| 14 | 1 | 1 | 1 | 0 | 0            | 0           | 1 |
| 15 | 1 | 1 | 1 | 1 | 0            | 0           | 0 |

$$\begin{aligned}
\text{СКНФ } F &= (A \vee B \vee C \vee \bar{D}) \wedge (A \vee B \vee \bar{C} \vee \bar{D}) \wedge (A \vee \bar{B} \vee C \vee \bar{D}) \wedge (\bar{A} \vee B \vee \\
&C \vee \bar{D}) \wedge (\bar{A} \vee B \vee \bar{C} \vee \bar{D}) \wedge (\bar{A} \vee \bar{B} \vee C \vee \bar{D}) \wedge (\bar{A} \vee \bar{B} \vee \bar{C} \vee \bar{D}) \\
\text{СДНФ } F &= (\bar{A} \wedge \bar{B} \wedge \bar{C} \wedge \bar{D}) \vee (\bar{A} \wedge \bar{B} \wedge C \wedge \bar{D}) \vee (\bar{A} \wedge B \wedge \bar{C} \wedge \bar{D}) \vee (\bar{A} \wedge B \wedge C \wedge \bar{D}) \vee \\
&(\bar{A} \wedge B \wedge C \wedge D) \vee (A \wedge \bar{B} \wedge \bar{C} \wedge \bar{D}) \vee (A \wedge \bar{B} \wedge C \wedge \bar{D}) \vee (A \wedge B \wedge \bar{C} \wedge \bar{D}) \vee (A \wedge B \wedge C \wedge \bar{D})
\end{aligned}$$