**ТЕОРИЯ АВТОМАТОВ**

**Лабораторная работа №0.**

**Синтез автоматов без памяти (комбинационных схем) на логических элементах**

**Задание №1.** Реализовать функцию четырех переменных в базисах: И-НЕ; ИЛИ-НЕ; на логических элементах серии К555. Оценить качество технической реализации.

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| Номер  варианта | *f*(*a*, *b*, *c*, *d*) | Номер  варианта | *f*(*a*, *b*, *c*, *d*) |
| 1 | *Y* = &(0,1,5,8,10,12,14,15) | 2 | *Y* = &(1,5,8,10,11,12,14) |
| 3 | *Y* =(1,5,8,10,11,12,14) | 4 | *Y* = &(3,4,5,6,10,11,13,15) |
| 5 | *Y* =(0,1,2,5,6,7,9,13,15) | 6 | *Y* =(1,2,3,4,5,6,9,13,15) |
| 7 | *Y* = &(1,4,8,10,12,14,15) | 8 | *Y* =(1,2,4,5,6,9,13,15) |
| 9 | *Y* =(0,2,3,4,5,6,11,13,15) | 10 | *Y* = &(1,2,4,6,9,13,15) |
| 11 | *Y* = &(0,2,3,4,5,6,9,11,13) | 12 | *Y* = &(1,7,8,9,10,12,14) |
| 13 | *Y* =(0,1,2,5,6,7,11,13,15) | 14 | *Y* = &(1,2,3,4,6,7,9,11,13) |
| 15 | *Y* =(1,2,3,4,6,7,9,13,15) | 16 | *Y* =(1,3,5,7,8,9,12,15) |
| 17 | *Y* = &(1,2,3,4,6,7,9,13,15) | 18 | *Y* =(0,1,5,8,10,12,14,15) |
| 19 | *Y* =(0,1,2,4,6,7,11,13,15) | 20 | *Y* = &(0,2,4,6,7,9,11,13) |
| 21 | *Y* =(0,2,3,4,5,6,9,13,15) | 22 | *Y* = &(1,2,4,5,6,9,13,15) |
| 23 | *Y* =(0,2,3,5,6,7,9,11,13) | 24 | *Y* = (0,2,3,4,5,6,9,11,13) |
| 25 | *Y* =(0,3,5,6,7,11,13,15) | 26 | *Y* =&(1,3,5,7,8,9,12,15) |
| 27 | *Y* = &(0,3,5,6,7,11,13,15) | 28 | *Y* = & (0,2,3,4,5,6,11,13,15) |
| 29 | *Y* =(3,4,5,6,10,11,13,15) | 30 | *Y* =(1,4,8,10,12,14,15) |
| 31 | *Y* =(0,1,5,8,10,12,14,15) | 32 | *Y* = &(0,1,2,5,6,7,9,13,15) |

**Задание №2.** Функцию *Y(a,b,c,d,f)* преобразовать в МКНФ и реализовать на элементах типа И-ИЛИ-НЕ серии К555, используя метод тождественных преобразований с предварительной группировкой**.**

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| **Номер**  **варианта** | **Функция** |
| 1 | *y =* |
| 2 | *y =* |
| 3 | *y =* |
| 4 | *y =* |
| 5 | *y =* |
| 6 | *y =* |
| 7 | *y =* |
| 8 | *y =* |
| 9 | *y =* |
| 10 | *y =* |
| 11 | *y =* |
| 12 | *y =* |
| 13 | *y =* |
| 14 | *y =* |
| 15 | *y =* |
| 16 | *y =* |
| 17 | *y =* |
| 18 | *y =* |
| 19 | *y =* |
| 20 | *y =* |
| 21 | *y =* |
| 22 | *y =* |
| 23 | *y =* |
| 24 | *y =* |
| 25 | *y =* |
| 26 | *y =* |
| 27 | *y =* |
| 28 | *y =* |
| 29 | *y =* |
| 30 | *y =* |