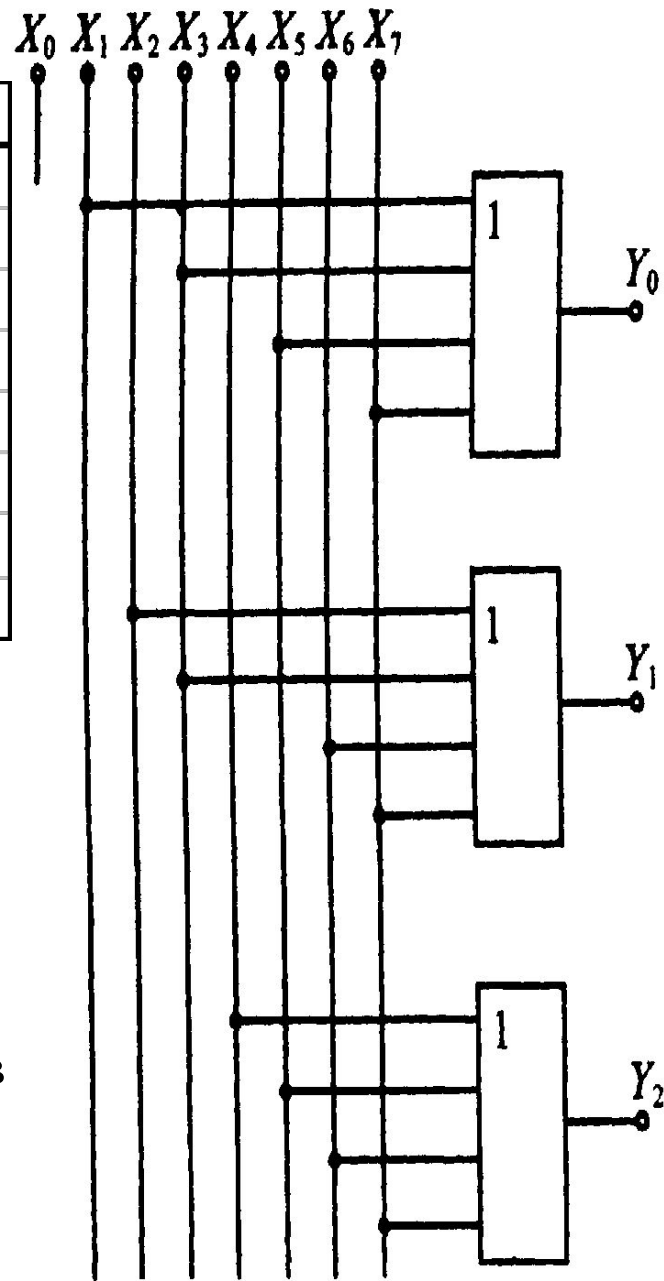


Преобразователи кодов

1. Шифраторы (кодеры)

Состояние входов и выходов шифратора 8x3

x7	x6	x5	x4	x3	x2	x1	x0	Y2	Y1	Y0
							1			
						1				1
					1				1	
			1					1		1
		1						1		1
	1							1	1	
1								1	1	1



$$Y_0 = x_1 + x_3 + x_5 + x_7$$

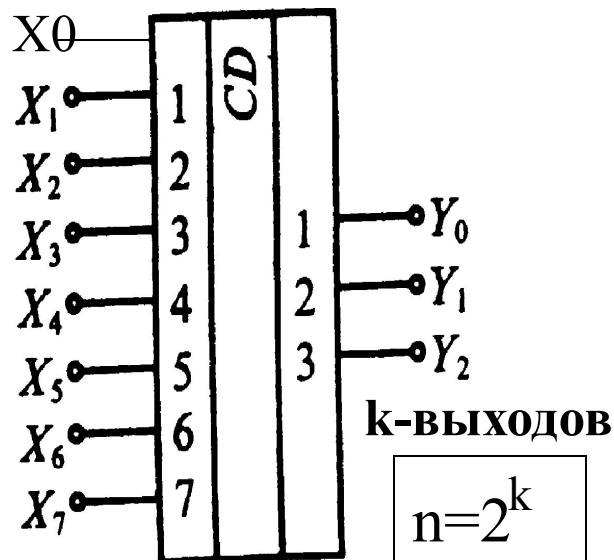
001 011 101 111

$$Y_1 = x_2 + x_3 + x_6 + x_7$$

010 011 110 111

$$Y_2 = x_4 + x_5 + x_6 + x_7$$

100 101 110 111



n-ВХОДОВ

k-ВЫХОДОВ

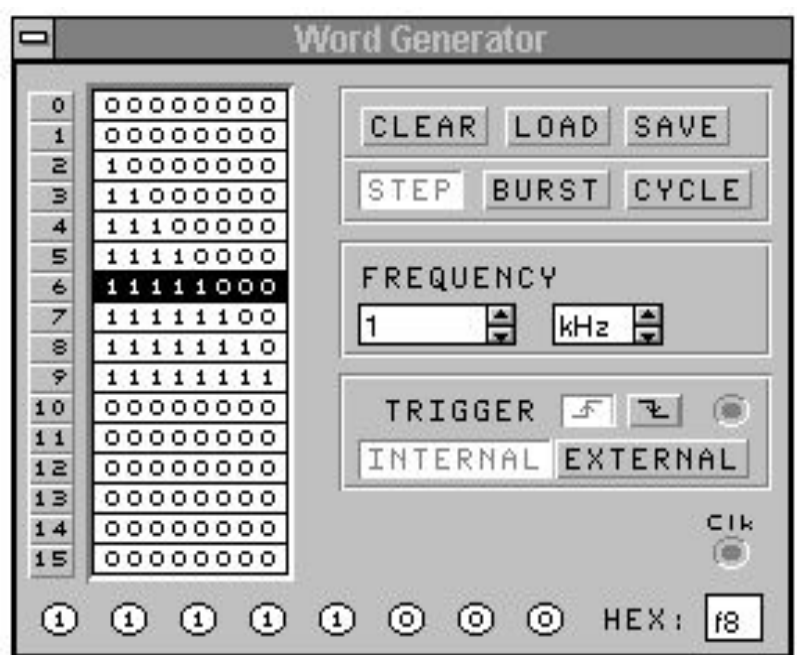
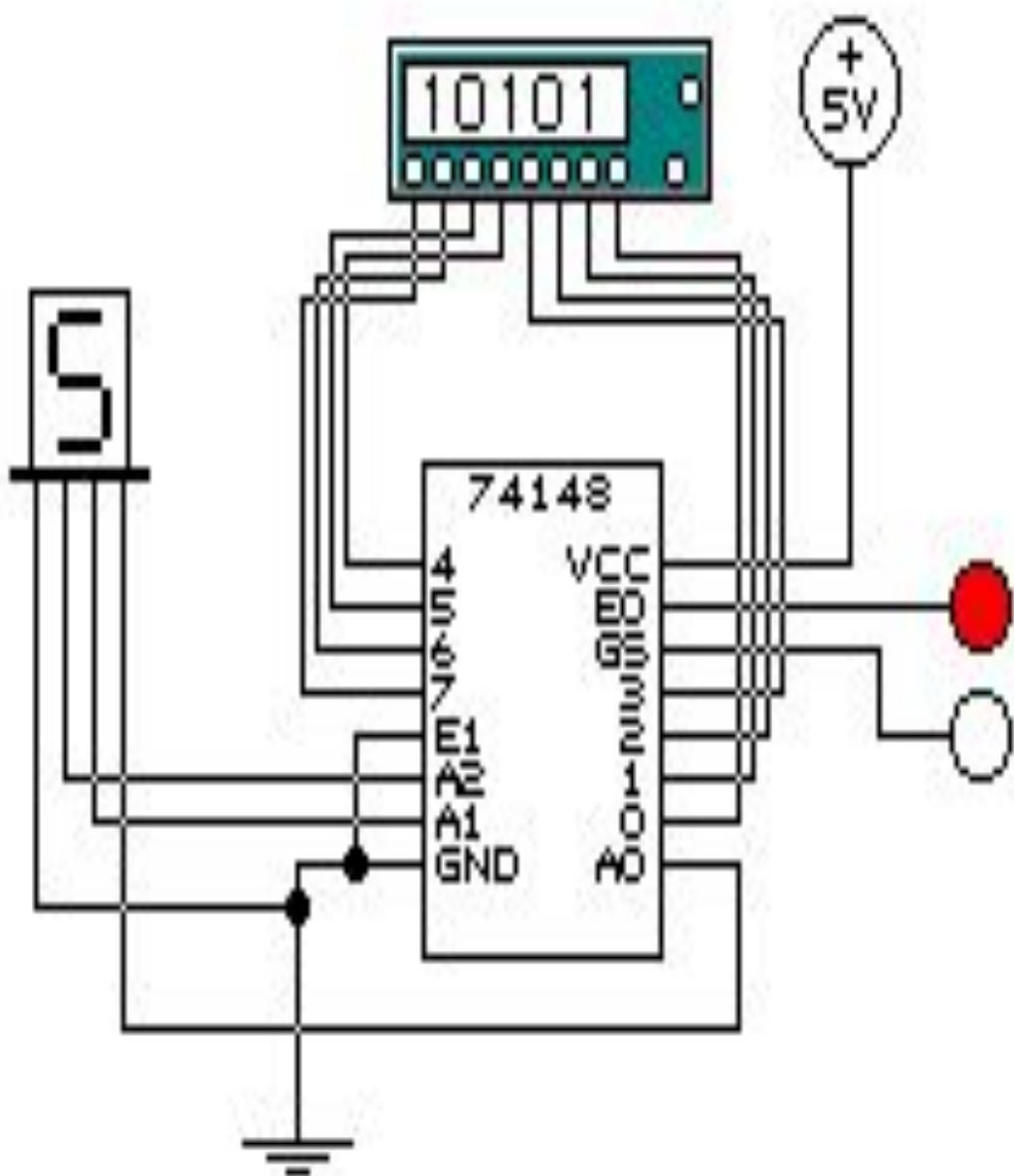
$$n = 2^k$$

74148 (8- to 3-line Priority Encoder)

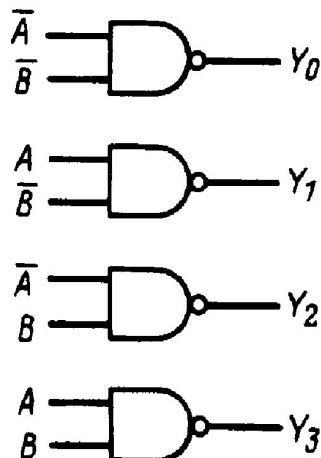
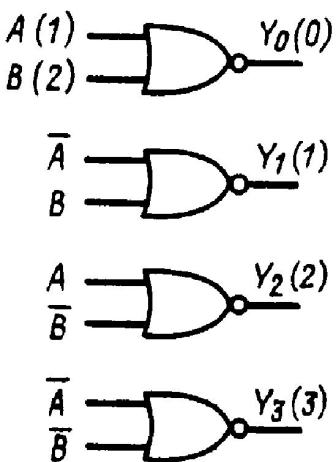
8-Line to 3-Line Priority Encoder truth table:

Inputs								Outputs					
EI	0	1	2	3	4	5	6	7	A2	A1	A0	GS	EO
1	X	X	X	X	X	X	X	X	1	1	1	1	1
0	1	1	1	1	1	1	1	1	1	1	1	1	0
0	X	X	X	X	X	X	0	0	0	0	0	0	1
0	X	X	X	X	X	0	1	0	0	1	0	0	1
0	X	X	X	X	0	1	1	0	1	0	0	0	1
0	X	X	X	0	1	1	1	0	1	1	0	0	1
0	X	X	0	1	1	1	1	1	0	0	1	0	1
0	X	0	1	1	1	1	1	1	1	0	0	0	1
0	0	1	1	1	1	1	1	1	1	1	1	0	1

Шифратор 8x3 (EWB-4)



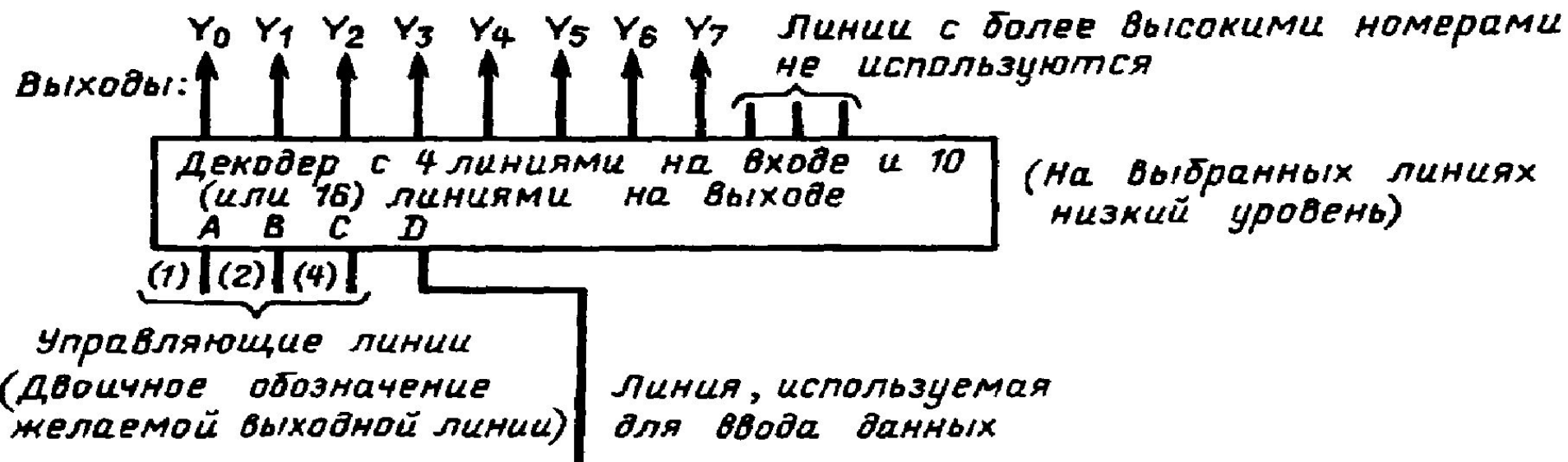
Дешифраторы (декодеры)



а)

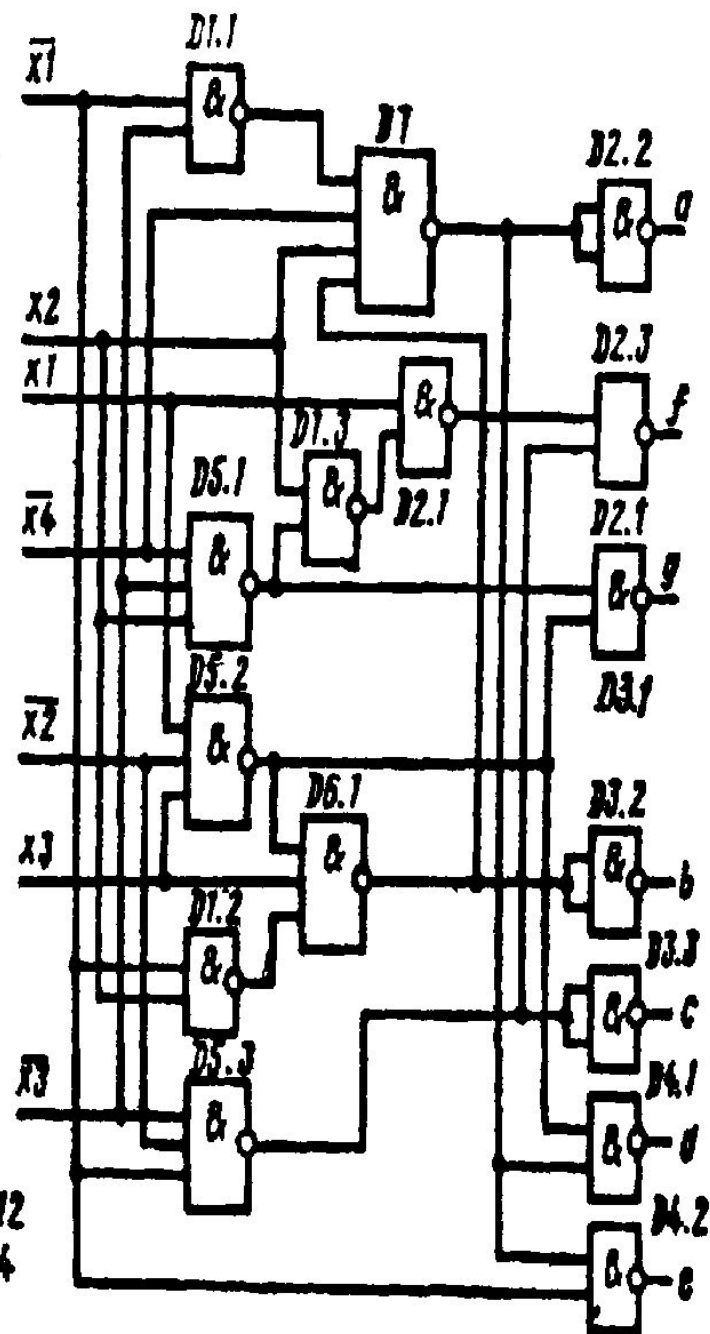
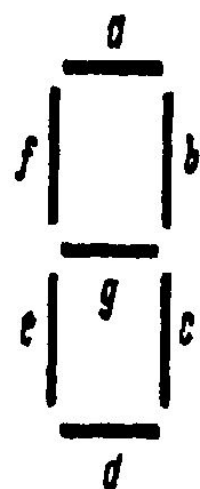
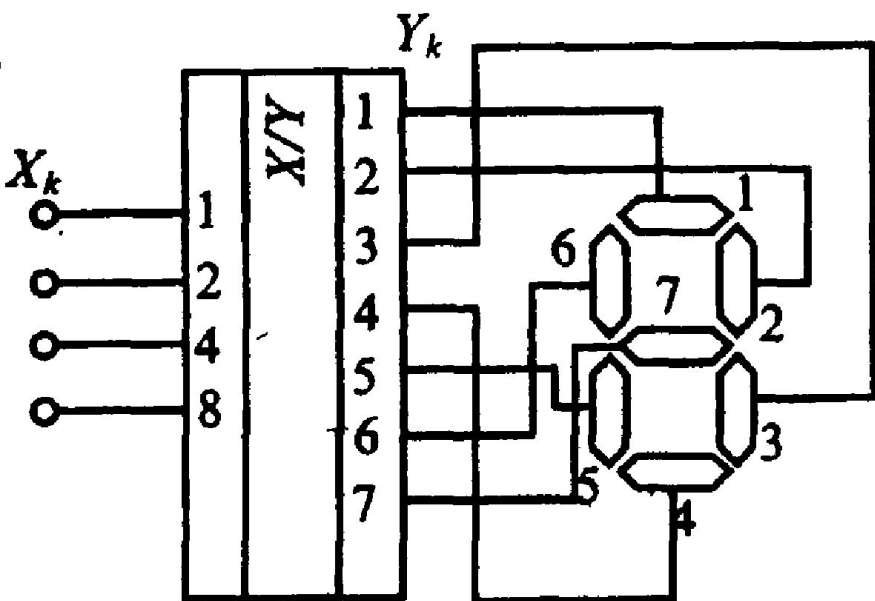
б)

Двоично-десятичный код				Выходы										Логика декодирования
A	B	C	D	0	1	2	3	4	5	6	7	8	9	
0	0	0	0	1	0	0	0	0	0	0	0	0	0	$\bar{A} \cdot \bar{B} \cdot \bar{C} \cdot \bar{D}$
0	0	0	1	0	1	0	0	0	0	0	0	0	0	$\bar{A} \cdot \bar{B} \cdot \bar{C} \cdot D$
0	0	1	0	0	0	1	0	0	0	0	0	0	0	$\bar{A} \cdot \bar{B} \cdot C \cdot \bar{D}$
0	0	1	1	0	0	0	1	0	0	0	0	0	0	$\bar{A} \cdot \bar{B} \cdot C \cdot D$
0	1	0	0	0	0	0	0	1	0	0	0	0	0	$\bar{A} \cdot B \cdot \bar{C} \cdot \bar{D}$
0	1	0	1	0	0	0	0	0	1	0	0	0	0	$\bar{A} \cdot B \cdot \bar{C} \cdot D$
0	1	1	0	0	0	0	0	0	0	1	0	0	0	$\bar{A} \cdot B \cdot C \cdot \bar{D}$
0	1	1	1	0	0	0	0	0	0	0	1	0	0	$\bar{A} \cdot B \cdot C \cdot D$
1	0	0	0	0	0	0	0	0	0	0	0	1	0	$A \cdot \bar{B} \cdot \bar{C} \cdot \bar{D}$
1	0	0	1	0	0	0	0	0	0	0	0	0	1	$A \cdot \bar{B} \cdot \bar{C} \cdot D$
1	0	1	0	0	0	0	0	0	0	0	0	0	0	$A \cdot \bar{B} \cdot C \cdot \bar{D}$
1	0	1	1	0	0	0	0	0	0	0	0	0	0	$A \cdot \bar{B} \cdot C \cdot D$
1	1	0	0	0	0	0	0	0	0	0	0	0	0	$A \cdot B \cdot \bar{C} \cdot \bar{D}$
1	1	0	1	0	0	0	0	0	0	0	0	0	0	$A \cdot B \cdot \bar{C} \cdot D$
1	1	1	0	0	0	0	0	0	0	0	0	0	0	$A \cdot B \cdot C \cdot \bar{D}$
1	1	1	1	0	0	0	0	0	0	0	0	0	0	$A \cdot B \cdot C \cdot D$



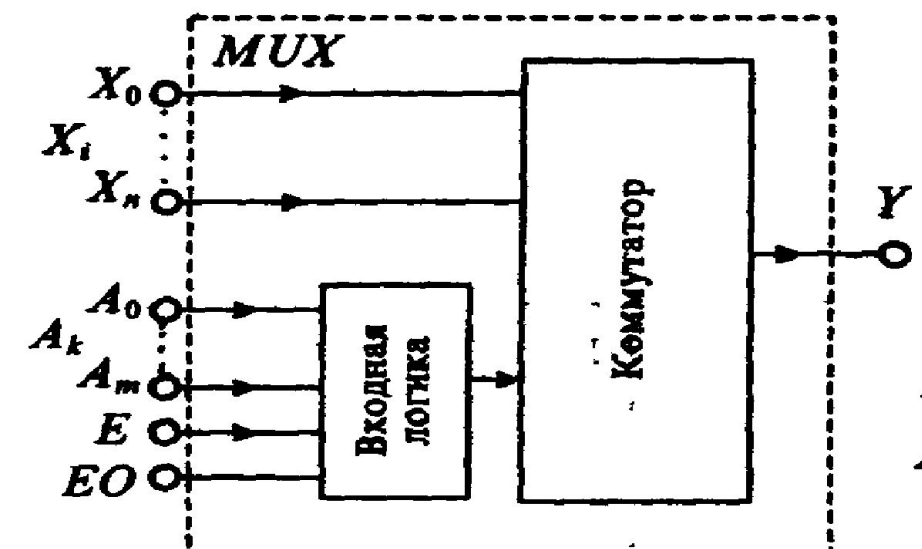
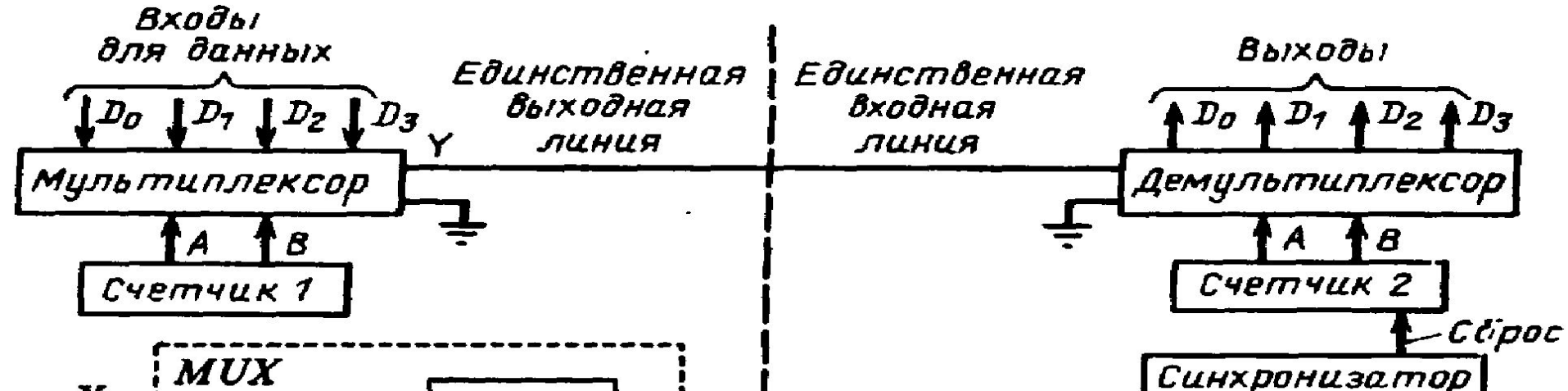
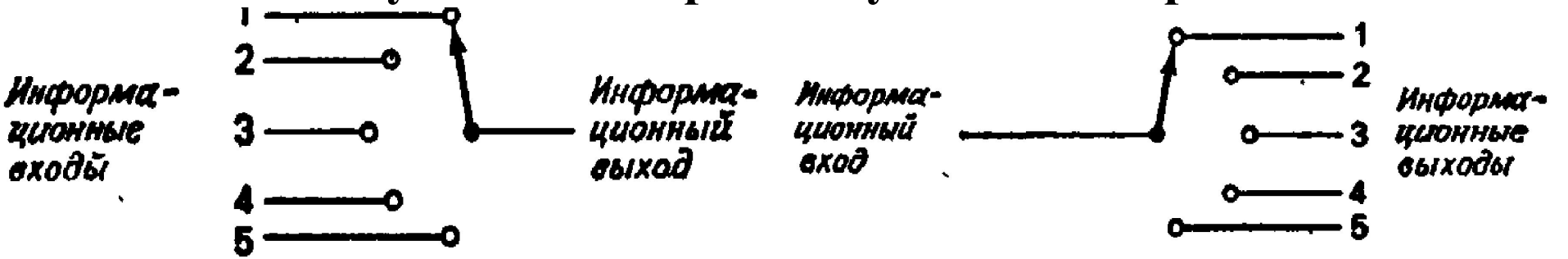
Семисегментный индикатор

n	Сегменты Y_k							Код X_k			
	1	2	3	4	5	6	7	8	4	2	1
0	1	1	1	1	1	1	0	0	0	0	0
1	0	1	1	0	0	0	0	0	0	0	1
2	1	1	0	1	1	0	1	0	0	1	0
3	1	1	1	0	1	0	1	0	0	1	1
4	0	1	1	0	0	1	1	0	1	0	0
5	1	0	1	1	0	1	1	0	1	0	1
6	1	0	1	1	1	1	1	0	1	1	0
7	1	1	1	0	0	0	0	0	1	1	1
8	1	1	1	1	1	1	1	1	0	0	0
9	1	1	1	1	0	1	1	1	0	0	1

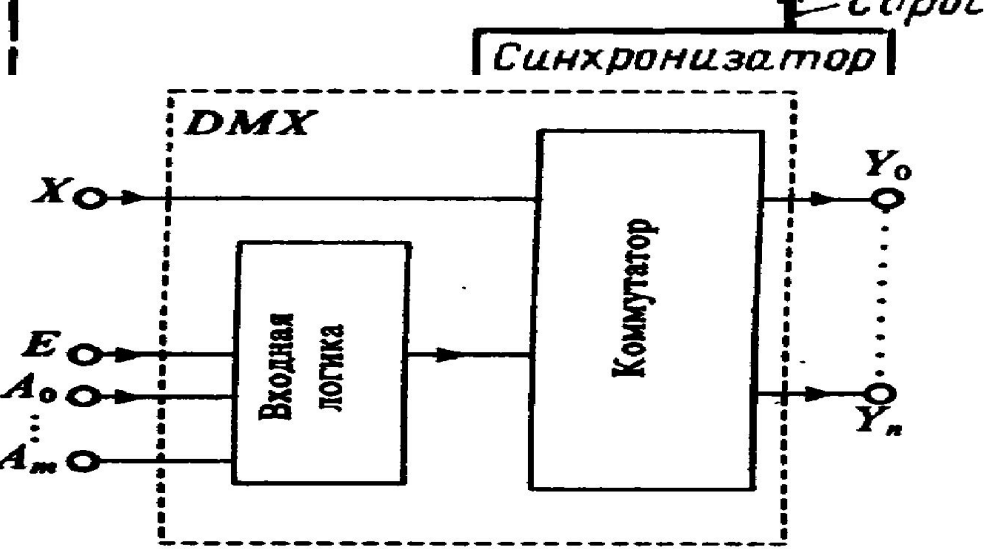


D1 555/1A3
 B2-D4 555/1A12
 D5, D6 555/1A4
 D7 555/1A1

Мультиплексоры / демультиплексоры



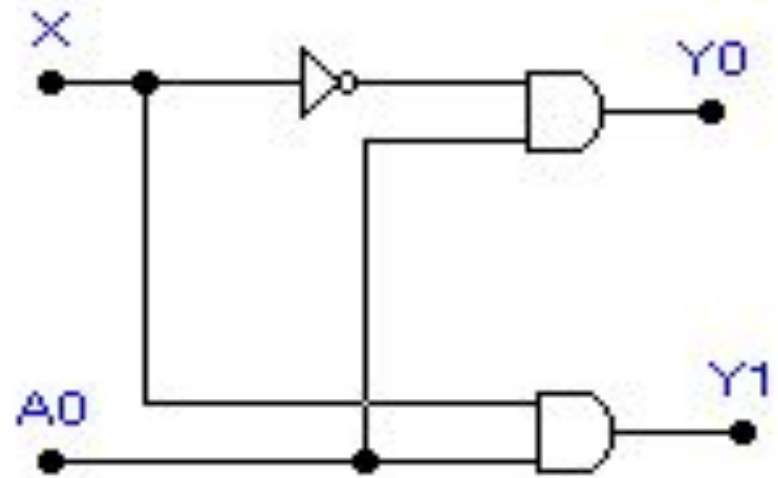
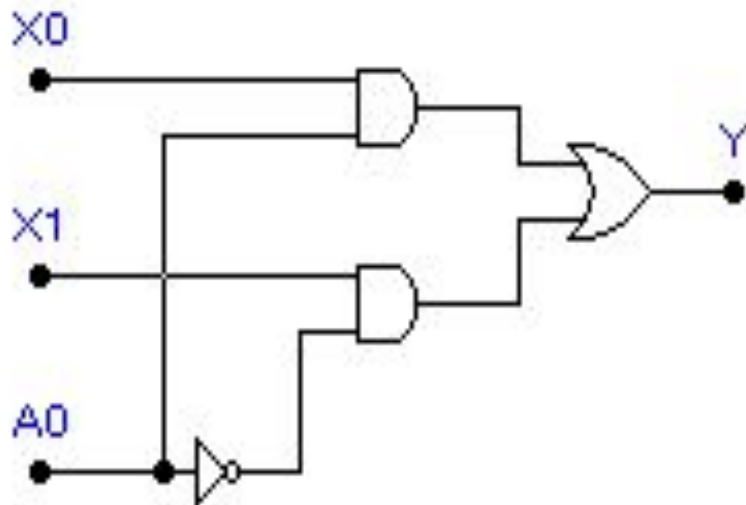
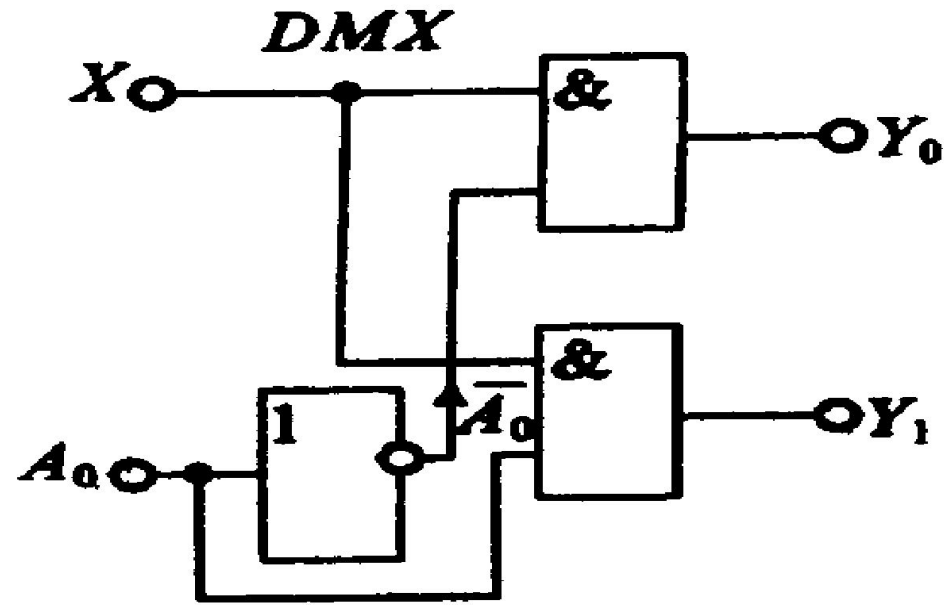
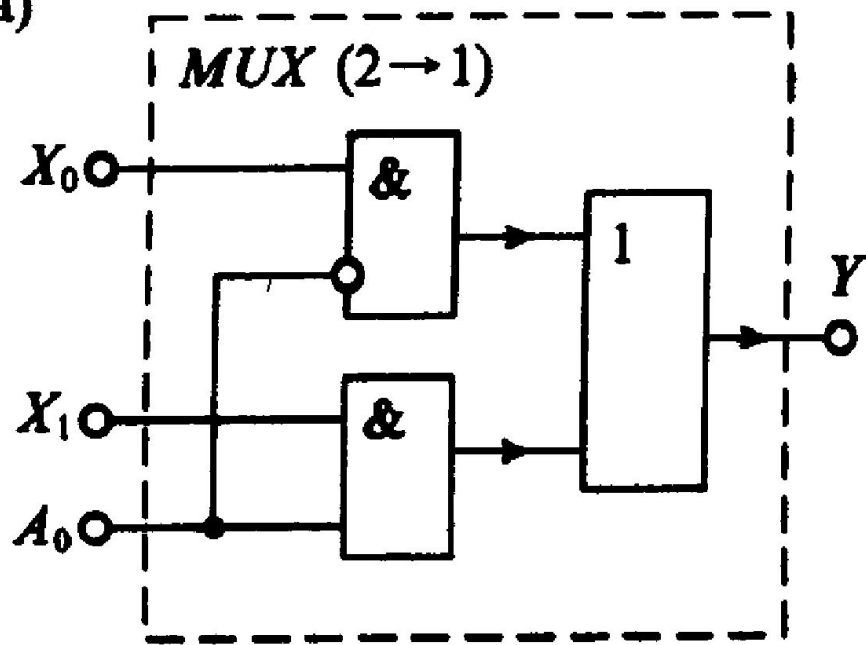
Обобщенная схема мультиплексора



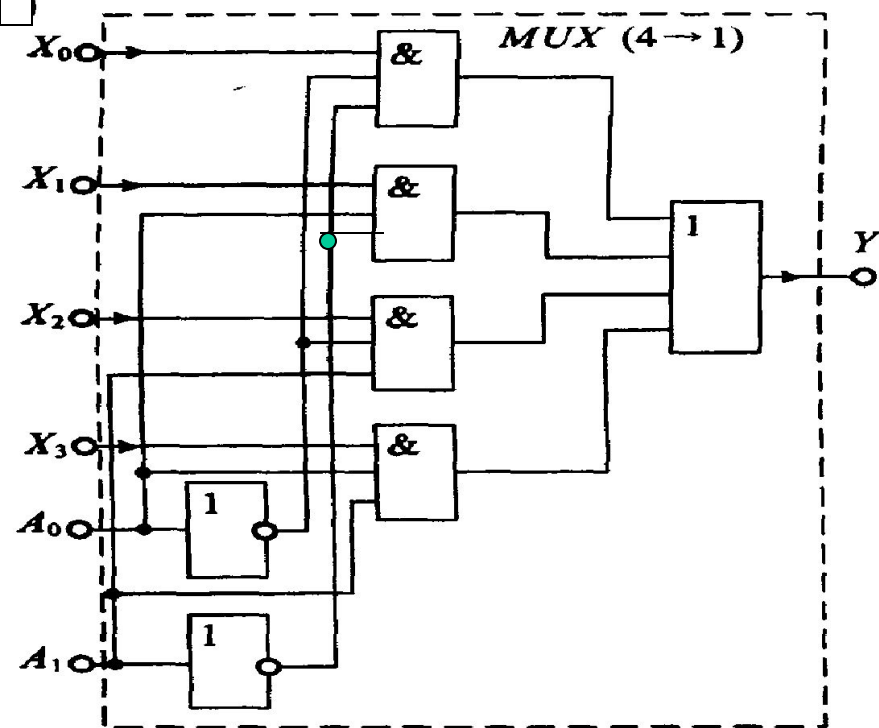
Обобщенная схема демультиплексора

Мультиплексоры /демультиплексоры

a)

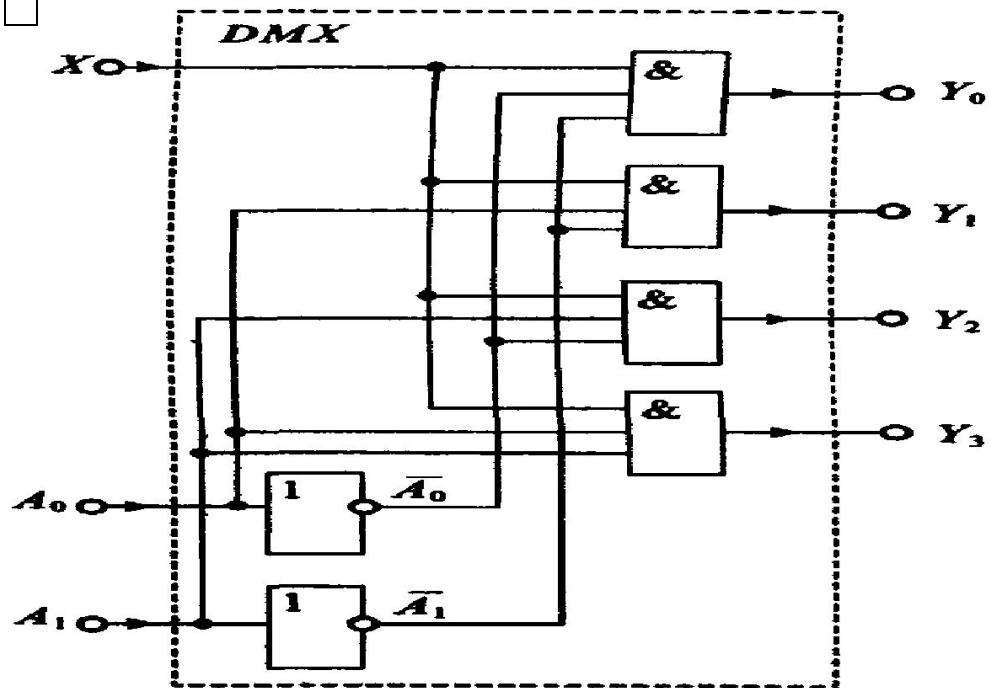


MDX DMX



Состояние мультиплексора (4 → 1)

A1	A0	Y
0	0	X_0
0	1	X_1
1	0	X_2
1	1	X_3



Состояния демультиплексора (1 → 4)

A1	A0	Y_0	Y_1	Y_2	Y_3
0	0	X	0	0	0
0	1	0	X	0	0
1	0	0	0	X	0
1	1	0	0	0	X