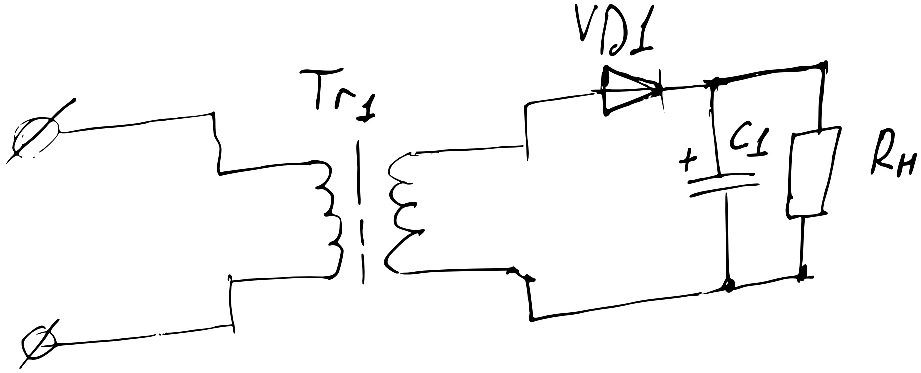
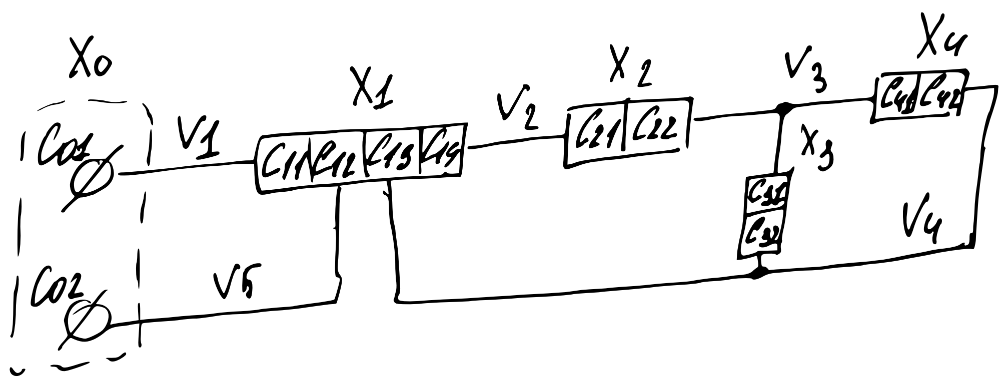
Условие задания:



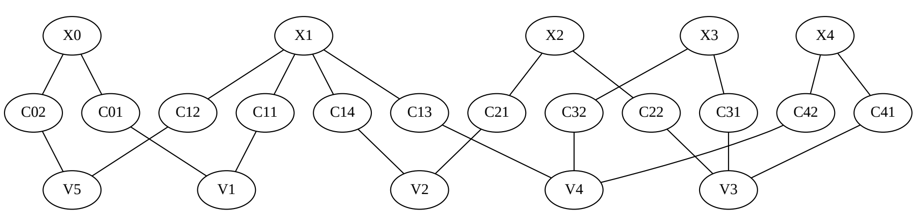
Коммутационная схема:



Список цепей:

V_1	$x_0,\, x_1$	$C_{11},\, C_{01}$
V_2	$x_2,\, x_1$	$C_{14},\, C_{21}$
V_3	$x_2,\, x_3,\, x_4$	$C_{41},\, C_{22},\, C_{31}$
V_4	$x_4,\, x_3,\, x_1$	$C_{32},\, C_{42},\, C_{13}$
V_5	$x_0,\, x_1$	$C_{02},\, C_{12}$

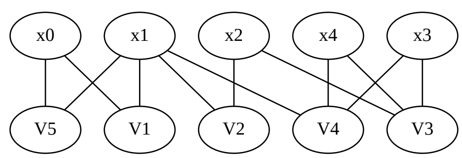
Граф коммутационной схемы:



$$A = \begin{array}{cc} & \begin{matrix} C_{01} & C_{02} & C_{11} & C_{12} & C_{13} & C_{14} & C_{21} & C_{22} & C_{31} & C_{32} & C_{41} & C_{42} \end{matrix} \\ \begin{matrix} V_1 \\ V_2 \\ V_3 \\ V_4 \\ V_5 \end{matrix} & \begin{pmatrix} 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix} \end{array}$$

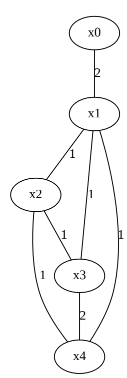
$$B = \begin{array}{cc} & \begin{matrix} C_{01} & C_{02} & C_{11} & C_{12} & C_{13} & C_{14} & C_{21} & C_{22} & C_{31} & C_{32} & C_{41} & C_{42} \end{matrix} \\ \begin{matrix} x_0 \\ x_1 \\ x_2 \\ x_3 \\ x_4 \end{matrix} & \begin{pmatrix} 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 \end{pmatrix} \end{array}$$

Граф элементных комплексов:



$$Q = \begin{array}{cc} & \begin{matrix} V_1 & V_2 & V_3 & V_4 & V_5 \end{matrix} \\ \begin{matrix} x_0 \\ x_1 \\ x_2 \\ x_3 \\ x_4 \end{matrix} & \begin{pmatrix} 1 & 0 & 0 & 0 & 1 \\ 1 & 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 0 \end{pmatrix} \end{array}$$

Взвешенный граф схемы:



$$R = \begin{array}{c} \\ x_0 \\ x_1 \\ x_2 \\ x_3 \\ x_4 \end{array} \begin{array}{c} \begin{array}{ccccc} x_0 & x_1 & x_2 & x_3 & x_4 \end{array} \\ \begin{pmatrix} 0 & 2 & 0 & 0 & 0 \\ 2 & 0 & 1 & 1 & 1 \\ 0 & 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 0 & 2 \\ 0 & 1 & 1 & 2 & 0 \end{pmatrix} \end{array}$$

Расширенная таблица соединений:

$$Z = \begin{pmatrix} 1 & 0 & 2 & 3 & 4 & 1 & 3 & 4 & 1 & 2 & 4 & 1 & 2 & 3 \end{pmatrix}$$

$$W = \begin{pmatrix} 2 & 2 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 2 & 1 & 1 & 2 \end{pmatrix}$$

$$Z = \begin{pmatrix} 1 & 5 & 8 & 11 & 14 \end{pmatrix}$$