5 Минимальный остов

По взятым из нижележащего списка матрице инцидентности простого графа и весовой функции p его ребер, заданной ее значениями на ребрах в порядке их следования в матрице инцидентности, построить минимальный остов графа [illegible]

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	1	1	0	0	0	1	0	1	0	0	0
2	0	0	0	0	1	1	0	0	1	0	1
3	0	0	0	1	0	0	1	1	1	0	0
4	1	0	1	0	1	0	1	0	0	0	0
5	0	0	1	0	0	0	0	0	0	1	1
6	0	1	0	1	0	0	0	0	0	1	0

№ 1 • $p \rightleftharpoons \langle 6, 9, 5,\ 3, 6, 7,\ 9, 6, 6,\ 6, 5\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	1	1	0	0	0	1	0	0	0	0	1
2	0	0	1	1	0	0	0	0	0	0	1
3	1	0	0	1	1	0	0	1	0	1	0
4	0	1	0	0	0	0	0	0	1	1	0
5	0	0	1	0	0	0	1	1	1	0	0
6	0	0	0	0	1	1	1	0	0	0	0

№ 2 • $p \rightleftharpoons \langle 1, 1, 9,\ 8, 5, 4,\ 2, 9, 5,\ 7, 6\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	1	0	0	0	1	1	0	1	0	0	0
2	0	0	0	0	0	0	0	1	0	1	1
3	1	0	0	1	0	0	1	0	0	0	1
4	0	1	1	0	0	1	1	0	0	0	0
5	0	0	1	0	0	0	0	0	1	1	0
6	0	1	0	1	1	0	0	0	1	0	0

№ 3 • $p \rightleftharpoons \langle 6, 2, 5,\ 2, 5, 4,\ 7, 4, 3,\ 1, 9\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	0	1	1	0	1	0	1	1	0	0
2	1	1	0	1	0	0	0	0	0	0	0
3	0	1	0	0	1	1	0	0	0	1	0
4	0	0	1	0	0	0	1	0	0	1	0
5	1	0	0	0	0	0	1	1	0	0	1
6	0	0	0	0	1	0	0	0	1	0	1

№ 4 • $p \rightleftharpoons \langle 2, 4, 7,\ 4, 6, 5,\ 9, 5, 8,\ 9, 8\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	1	1	1	1	0	0	0	0	0	0
2	0	1	0	0	0	0	1	0	1	0	1
3	1	0	0	1	0	0	0	0	0	1	1
4	1	0	1	0	0	0	0	1	0	0	0
5	0	0	0	0	0	1	0	1	1	0	0
6	0	0	0	0	1	1	1	0	0	1	0

№ 5 • $p \rightleftharpoons \langle 7, 3, 6,\ 2, 2, 1,\ 5, 3, 7,\ 5, 3\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	1	0	1	0	0	1	0	0	0	0
2	0	0	1	1	1	0	0	1	0	0	0
3	0	0	1	0	0	0	0	0	1	1	1
4	0	1	0	0	0	1	0	1	0	1	0
5	1	0	0	0	1	1	0	0	1	0	0
6	1	0	0	0	0	0	1	0	0	0	1

№ 6 • $p \rightleftharpoons \langle 5, 7, 3,\ 7, 2, 5,\ 5, 5, 9,\ 8, 5\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	0	1	1	0	0	0	0	0	1	0
2	0	1	0	0	0	1	1	0	0	1	0
3	1	1	0	0	0	0	0	0	0	0	1
4	1	0	0	1	1	1	0	0	1	0	0
5	0	0	0	0	1	0	1	1	0	0	0
6	0	0	1	0	0	0	0	1	1	0	1

№ 7 • $p \rightleftharpoons \langle 8, 9, 2,\ 3, 5, 1,\ 8, 8, 7,\ 2, 1\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	1	1	0	0	0	0	1	0	1	0
2	0	0	0	1	0	0	1	0	0	1	1
3	1	0	0	0	1	0	1	0	0	0	0
4	1	1	0	0	0	1	0	0	0	0	1
5	0	0	1	1	0	1	0	0	1	0	0
6	0	0	0	0	1	0	0	1	1	0	0

№ 8 • $p \rightleftharpoons \langle 5, 4, 1,\ 8, 8, 9,\ 3, 6, 9,\ 8, 3\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	0	0	1	0	0	1	0	0	0	1
2	1	0	1	0	0	1	1	0	0	1	0
3	0	0	0	0	0	1	0	1	1	0	0
4	0	0	0	1	1	0	0	0	1	1	0
5	0	1	1	0	1	0	0	0	0	0	0
6	1	1	0	0	0	0	0	1	0	0	1

№ 9 • $p \rightleftharpoons \langle 8, 7, 7,\ 7, 2, 2,\ 8, 7, 8,\ 6, 2\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	1	0	0	0	1	0	1	0	0	0
2	0	0	0	1	0	1	1	0	0	0	0
3	0	0	0	0	1	0	1	0	1	0	1
4	1	0	0	0	0	0	0	1	0	1	1
5	1	0	1	1	0	0	0	0	1	0	0
6	0	1	1	0	1	0	0	0	0	1	0

№10 • $p \rightleftharpoons \langle 9, 3, 8,\ 9, 5, 7,\ 9, 5, 7,\ 5, 5\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	1	1	0	0	1	0	1	0	0	0
2	1	0	0	0	0	1	1	0	0	0	0
3	0	0	0	0	0	0	1	0	1	1	1
4	0	0	1	0	1	0	0	0	0	0	1
5	1	0	0	1	1	0	0	1	1	0	0
6	0	1	0	1	0	0	0	0	0	1	0

№11 • $p \rightleftharpoons \langle 5, 4, 7,\ 6, 3, 1,\ 6, 2, 2,\ 3, 7\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	1	0	0	0	1	0	1	0	0	0	0
2	0	0	1	0	1	0	0	1	0	0	1
3	0	1	0	0	0	1	0	0	1	0	1
4	1	1	0	1	0	0	0	0	0	0	0
5	0	0	0	1	0	1	0	1	0	1	0
6	0	0	1	0	0	0	1	0	1	1	0

№12 • $p \rightleftharpoons \langle 3, 9, 8,\ 7, 3, 6,\ 9, 7, 3,\ 7, 4\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	1	0	0	1	0	1	1	0	0	1	0
2	0	0	1	0	1	1	0	0	0	0	0
3	0	1	0	1	1	0	0	0	0	0	0
4	1	1	0	0	0	0	0	1	0	0	1
5	0	0	1	0	0	1	0	1	0	1	0
6	0	0	0	1	0	0	1	0	0	1	1

№13 • $p \rightleftharpoons \langle 6, 9, 8,\ 6, 4, 2,\ 5, 2, 7,\ 6, 9\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	0	0	1	0	1	0	1	0	0	0
2	0	1	0	0	0	0	0	1	0	1	1
3	1	0	1	0	0	0	0	0	0	0	1
4	1	0	0	0	1	1	1	0	0	0	0
5	0	0	0	0	1	0	0	0	1	1	0
6	0	1	1	1	0	0	1	0	1	0	0

№14 • $p \rightleftharpoons \langle 2, 9, 5,\ 5, 9, 1,\ 2, 7, 9,\ 8, 5\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	0	0	1	0	1	1	0	0	1	0
2	1	0	1	1	1	0	0	0	0	0	0
3	0	1	0	0	1	0	0	1	0	0	0
4	0	0	0	0	0	0	1	1	0	0	1
5	1	0	0	0	0	0	0	0	1	1	1
6	0	1	1	0	0	1	0	0	1	0	0

№15 • $p \rightleftharpoons \langle 2, 6, 8,\ 3, 4, 7,\ 5, 5, 8,\ 7, 2\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	0	0	1	1	1	0	0	0	0	1
2	0	1	0	0	0	0	1	1	0	0	1
3	0	0	1	1	0	0	1	0	0	1	0
4	1	0	0	0	0	1	0	1	0	1	0
5	1	1	0	0	0	0	0	0	1	0	0
6	0	0	1	0	1	0	0	0	1	0	0

№16 • $p \rightleftharpoons \langle 7, 8, 6,\ 3, 7, 8,\ 3, 6, 1,\ 5, 6\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	0	1	1	0	0	1	0	1	0	0	0
2	0	0	0	0	0	1	1	0	0	0	1
3	1	0	1	0	1	0	0	0	0	1	1
4	0	1	0	0	1	0	0	0	1	0	0
5	0	0	0	1	0	0	1	0	1	1	0
6	1	0	0	1	0	0	0	1	0	0	0

№17 • $p \rightleftharpoons \langle 9, 6, 6,\ 8, 4, 2,\ 1, 1, 7,\ 7, 9\rangle$

v \ e	a	b	c	d	e	f	g	h	i	j	k
1	1	0	0	0	0	0	1	0	1	1	0
2	0	0	0	0	0	0	1	1	0	0	1
3	0	0	1	0	1	0	0	0	1	0	1
4	1	0	1	1	0	1	0	0	0	0	0
5	0	1	0	1	0	0	0	1	0	0	0
6	0	1	0	0	1	1	0	0	0	1	0

№18 • $p \rightleftharpoons \langle 7, 8, 4,\ 2, 6, 7,\ 2, 6, 4,\ 3, 1\rangle$