

Расчетно-графическое задание 3

Трехфазные электрические цепи

В трехфазной цепи имеются трехфазный генератор, соединенный звездой, создающий трехфазную симметричную систему ЭДС, а также несимметричная нагрузка. *Примечание:* начальную фазу ЭДС E_A принять нулевой.

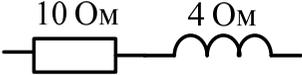
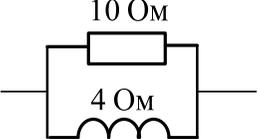
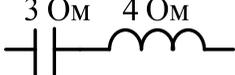
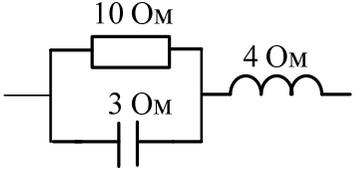
Для исходных данных (таблица 3.1), соответствующих номеру вашего варианта, необходимо выполнить следующие расчеты:

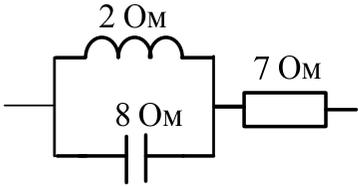
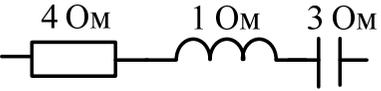
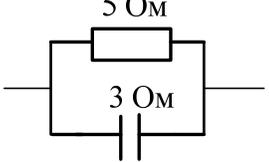
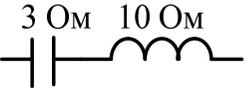
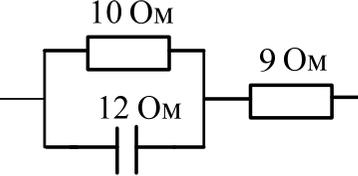
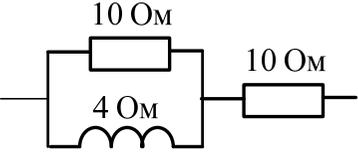
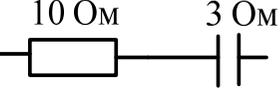
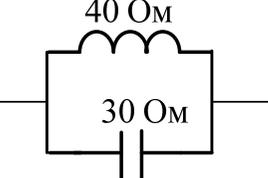
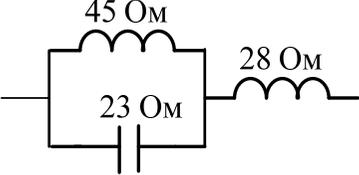
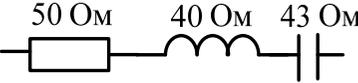
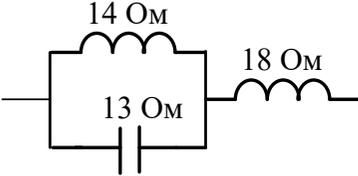
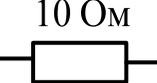
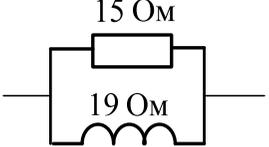
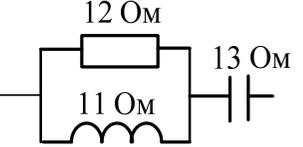
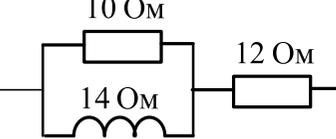
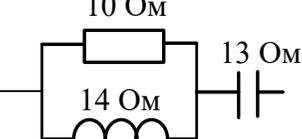
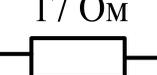
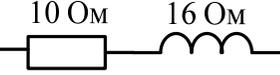
1. Зарисовать схему цепи в соответствии с заданием варианта.
2. Рассчитать токи в фазах нагрузки и линейных проводах.
3. Рассчитать напряжения на фазах потребителя и падения напряжений в линейных проводах.
4. Рассчитать мощности трехфазной системы.
5. Построить совмещенную векторную диаграмму токов (ВДТ) и топографическую диаграмму напряжений (ТДН).

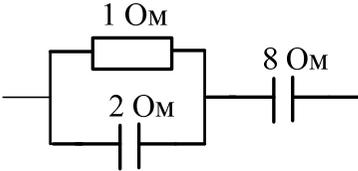
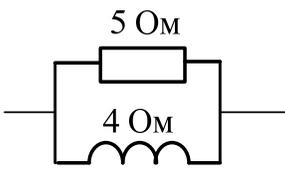
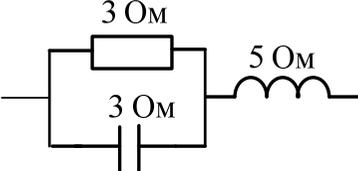
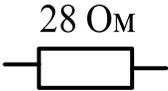
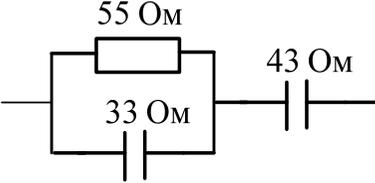
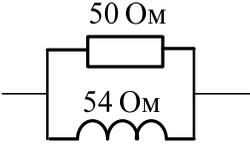
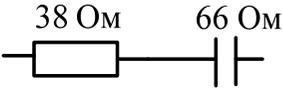
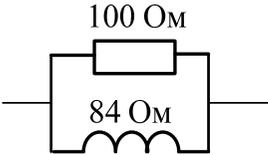
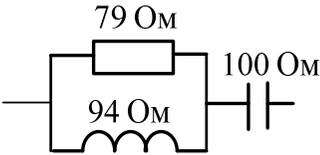
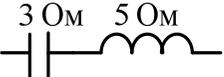
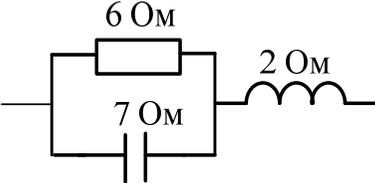
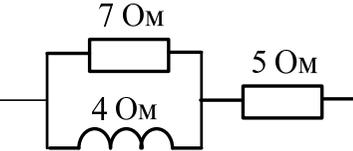
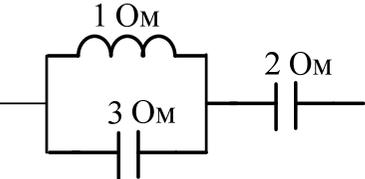
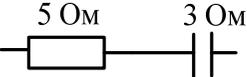
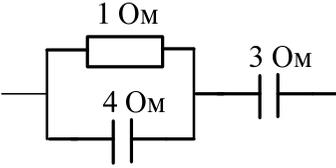
Задание для самостоятельного выполнения

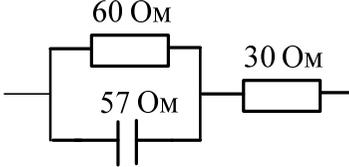
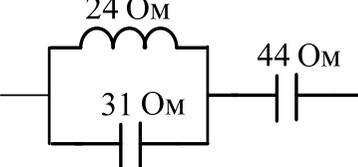
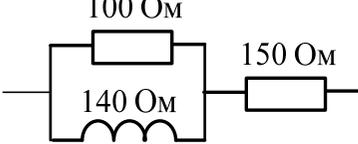
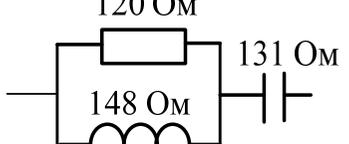
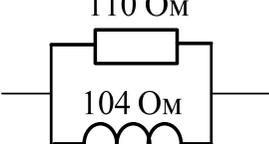
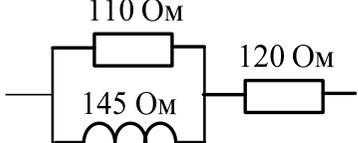
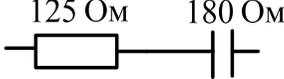
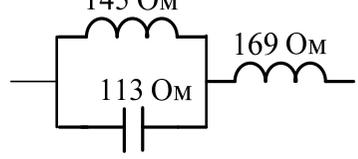
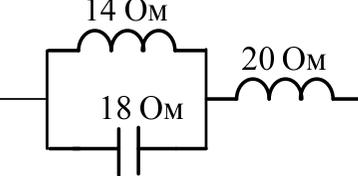
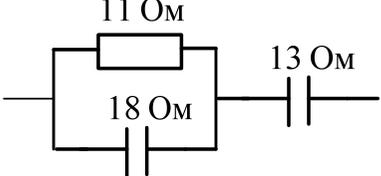
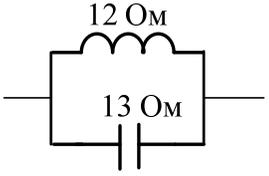
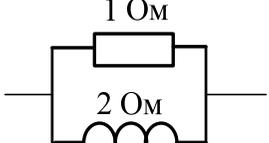
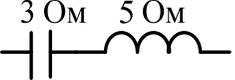
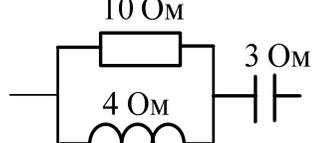
Таблица 3.1

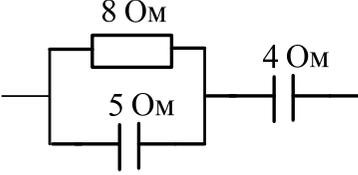
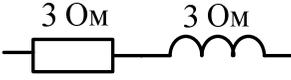
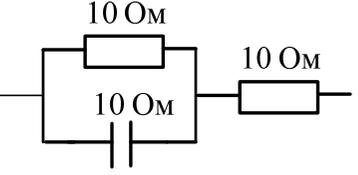
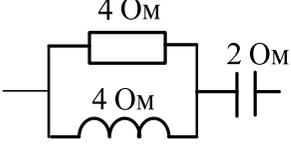
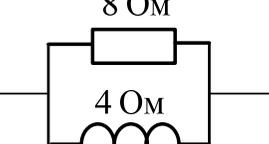
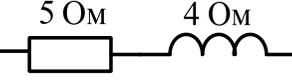
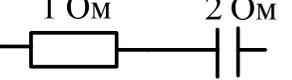
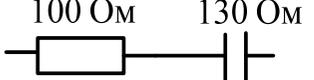
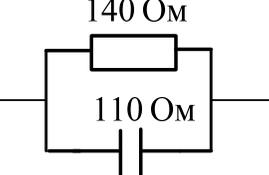
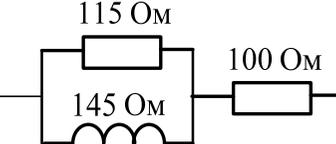
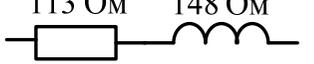
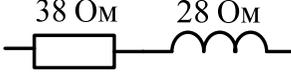
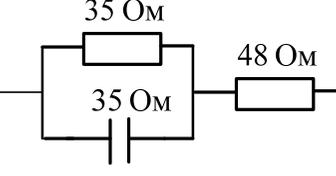
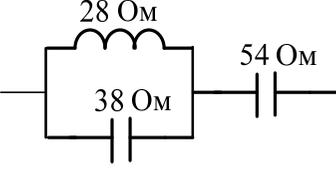
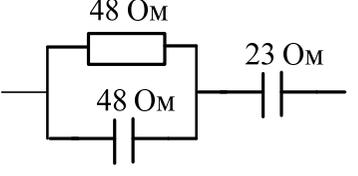
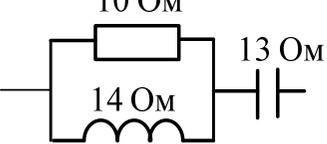
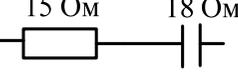
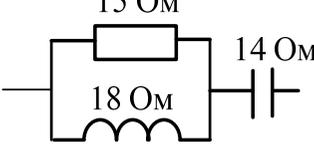
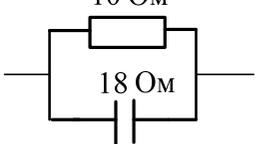
Исходные данные

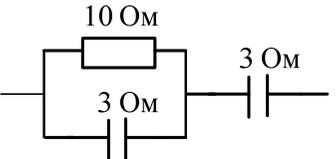
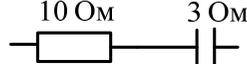
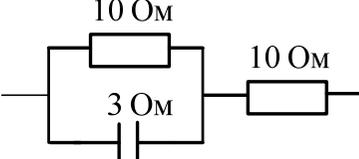
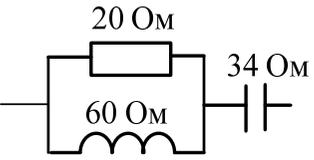
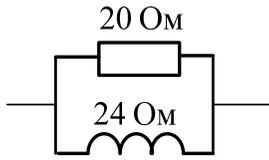
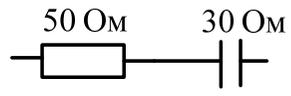
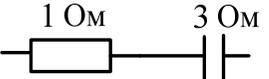
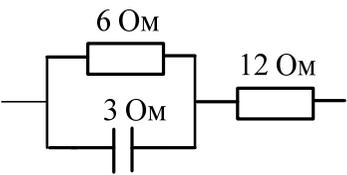
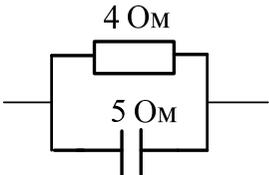
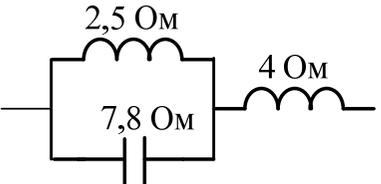
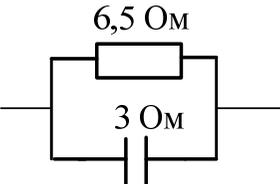
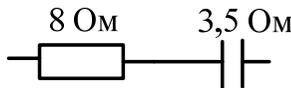
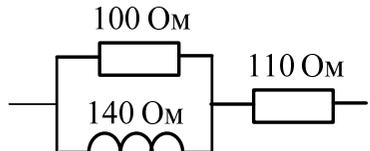
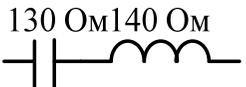
вариант	$E_A, В$	Вид соединения	Линейная нагрузка	Фазная нагрузка		
				Фаза «а»	Фаза «b»	Фаза «с»
1	2	3	4	5	6	7
1	50	Y				

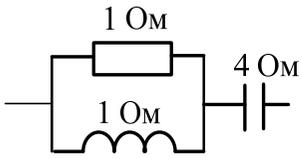
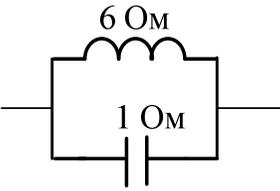
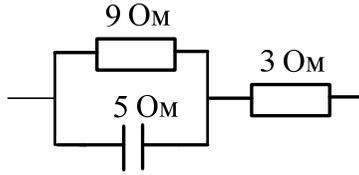
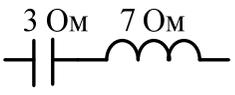
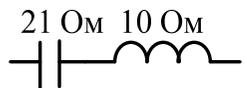
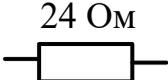
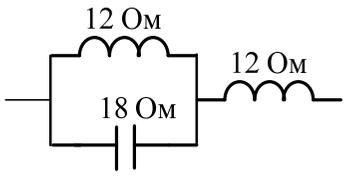
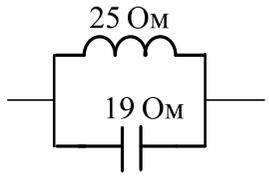
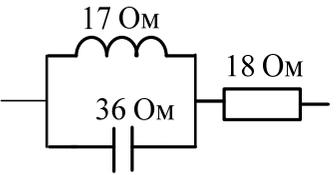
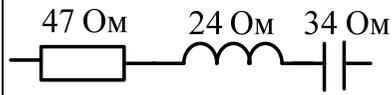
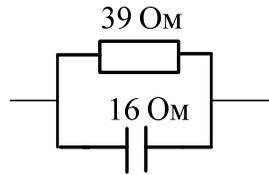
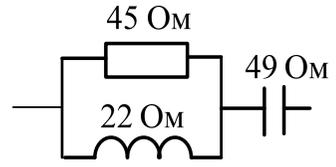
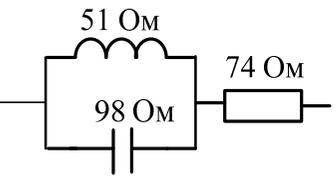
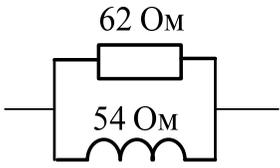
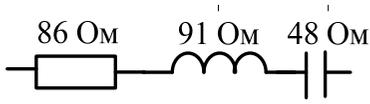
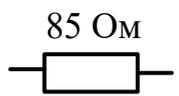
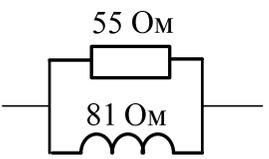
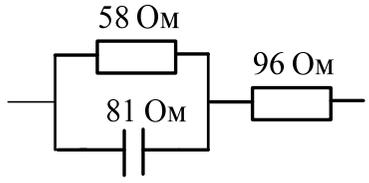
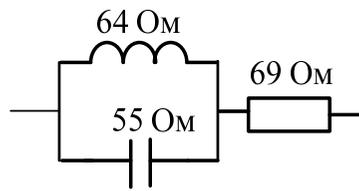
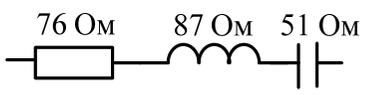
1	2	3	4	5	6	7
2	60	Δ				
3	70	Y				
4	80	Δ				
5	95	Y				
6	100	Δ				

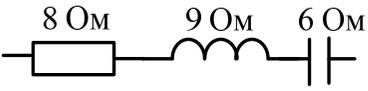
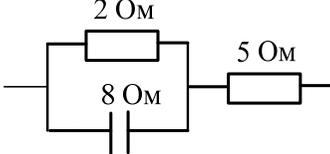
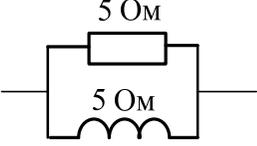
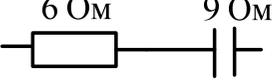
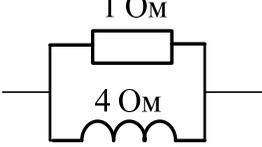
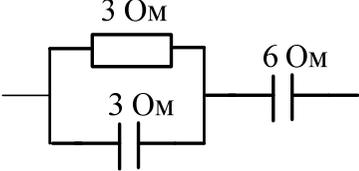
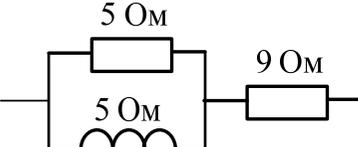
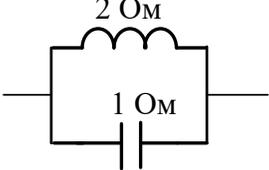
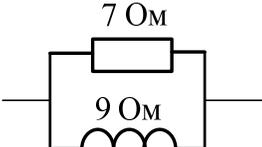
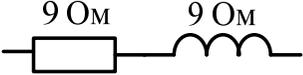
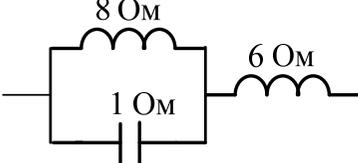
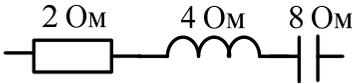
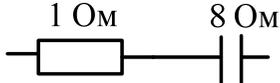
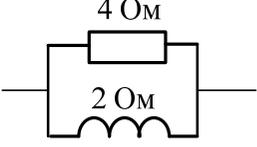
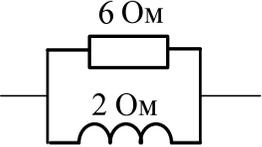
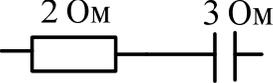
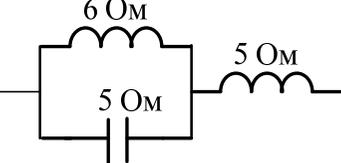
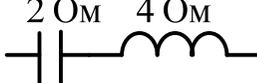
1	2	3	4	5	6	7
7	110	Y				
8	115	Δ				
9	120	Y				
10	130	Δ				
11	135	Y				

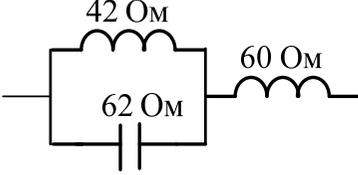
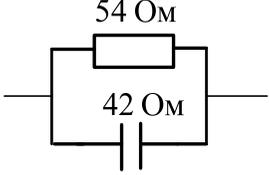
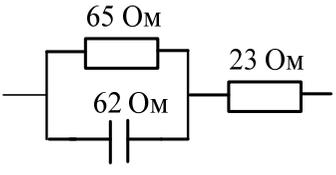
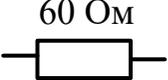
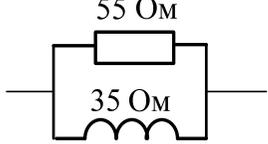
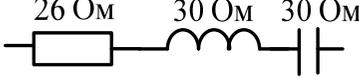
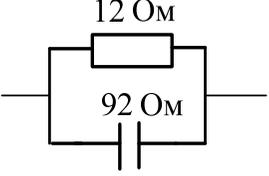
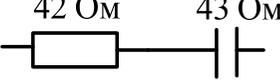
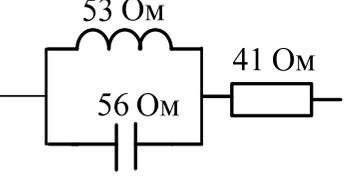
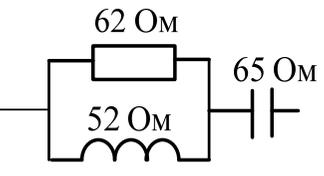
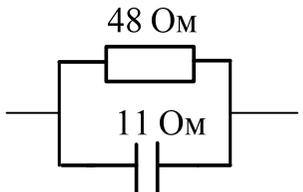
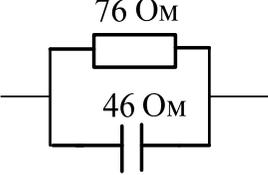
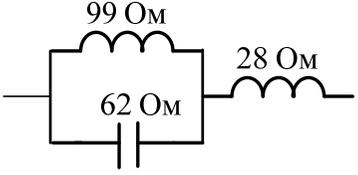
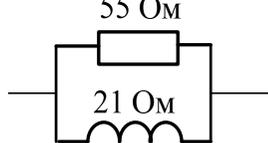
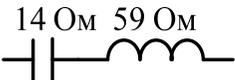
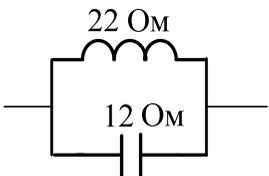
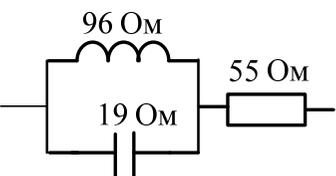
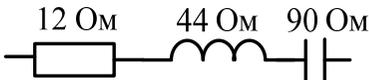
1	2	3	4	5	6	7
12	140	Δ				
13	150	Y				
14	160	Δ				
15	180	Y				
16	200	Δ				

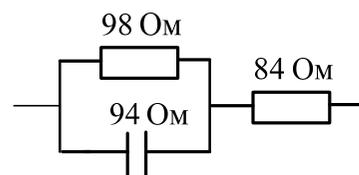
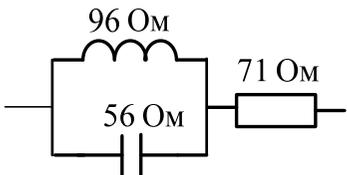
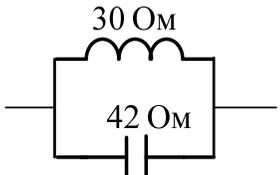
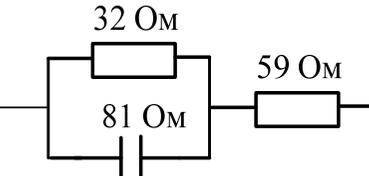
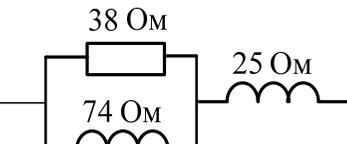
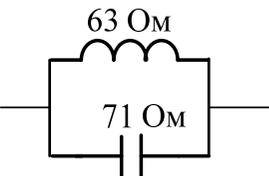
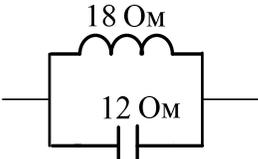
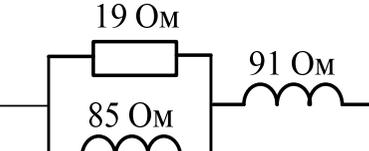
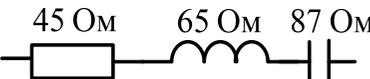
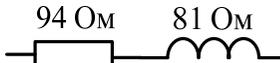
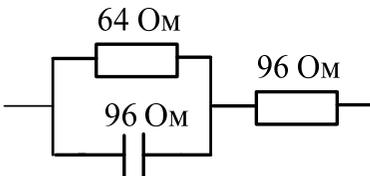
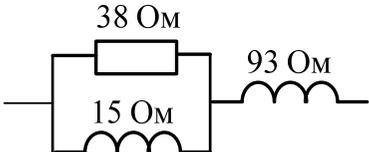
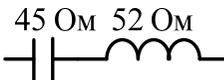
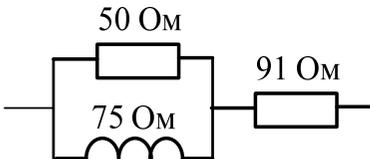
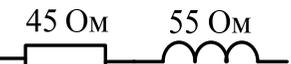
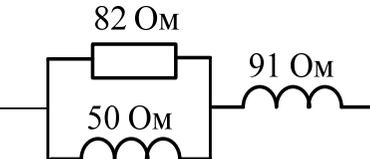
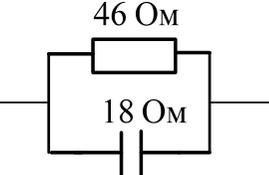
1	2	3	4	5	6	7
17	210	Y				
18	220	Δ				
19	230	Y				
20	240	Δ				
21	250	Y				

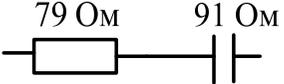
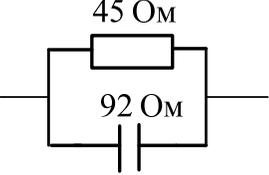
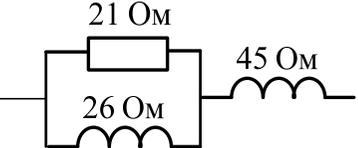
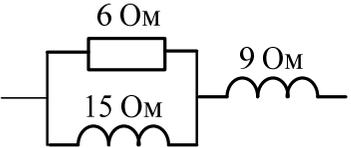
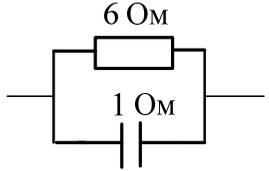
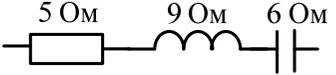
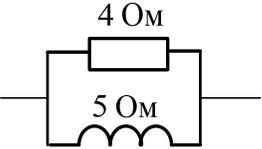
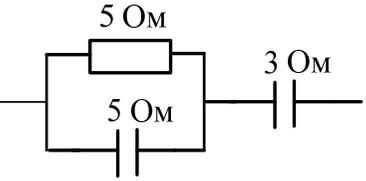
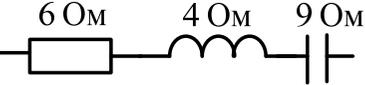
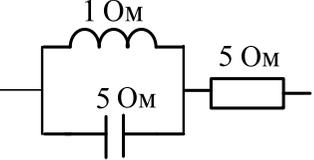
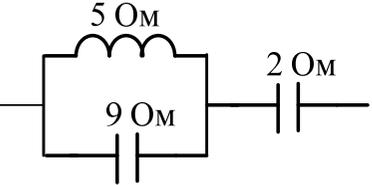
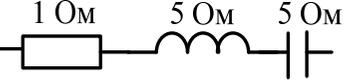
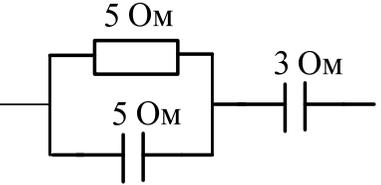
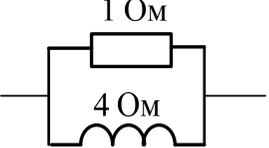
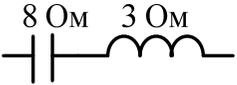
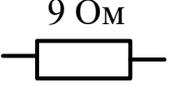
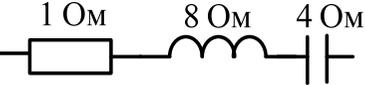
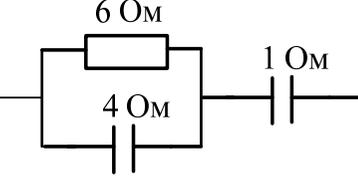
1	2	3	4	5	6	7
22	260	Δ				
23	270	Y				
24	280	Δ				
25	290	Y				
26	300	Δ				

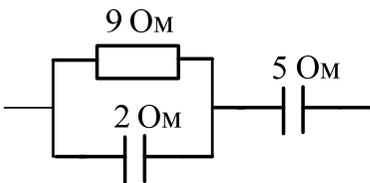
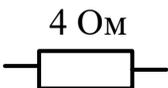
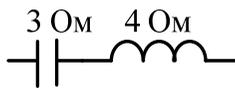
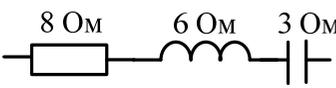
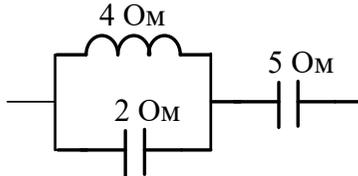
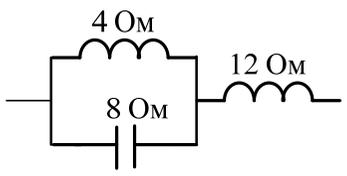
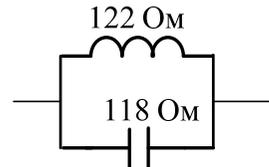
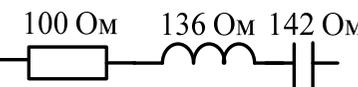
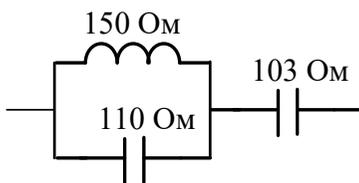
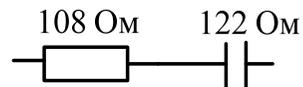
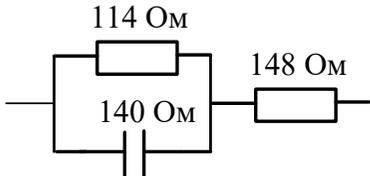
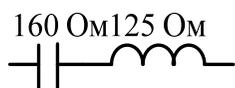
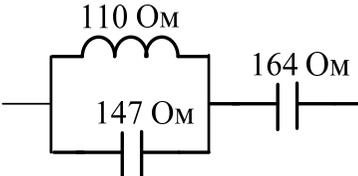
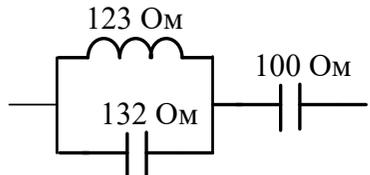
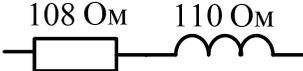
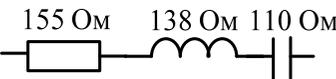
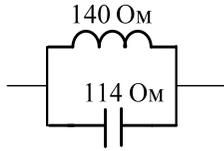
1	2	3	4	5	6	7
27	310	Y				
28	320	Δ				
29	330	Y				
30	340	Δ				
31	350	Y				

1	2	3	4	5	6	7
32	360	Δ				
33	370	Y				
34	380	Δ				
35	10	Y				
36	20	Δ				

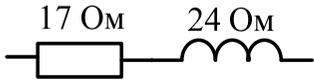
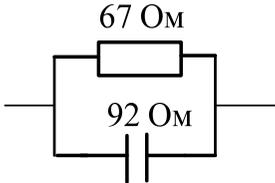
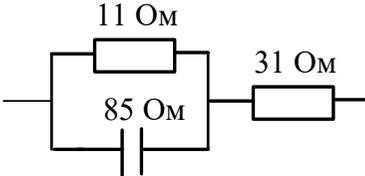
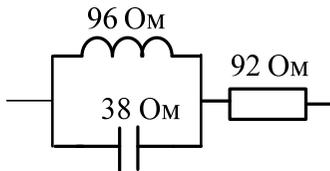
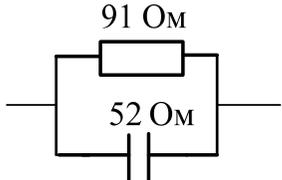
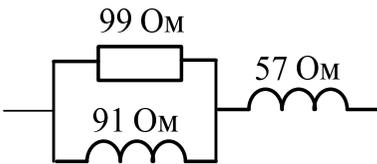
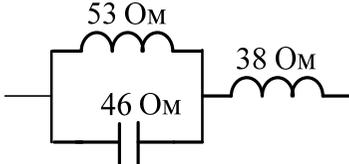
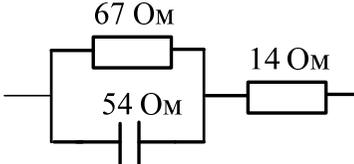
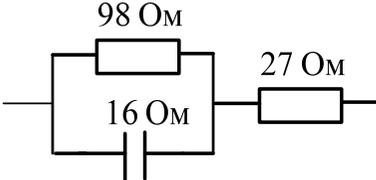
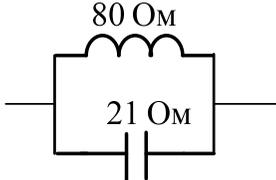
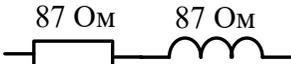
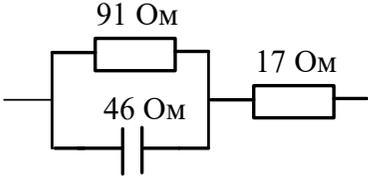
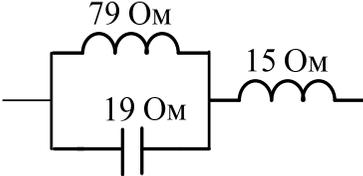
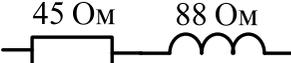
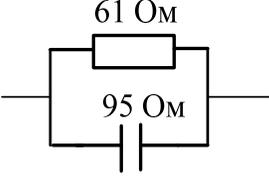
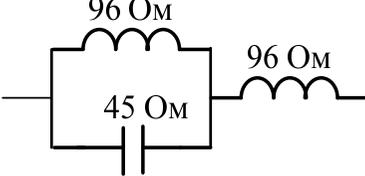
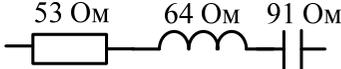
1	2	3	4	5	6	7
37	30	Y				
38	40	Δ				
39	55	Y				
40	65	Δ				
41	75	Y				

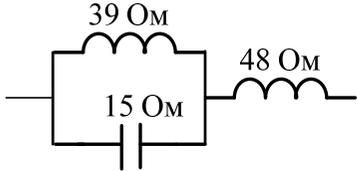
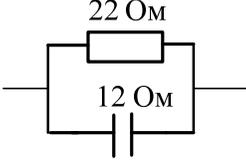
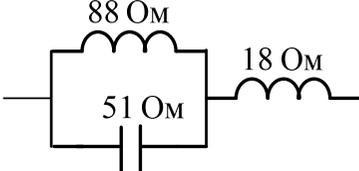
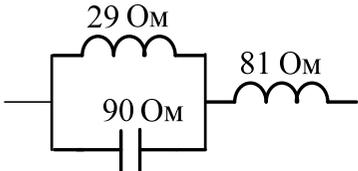
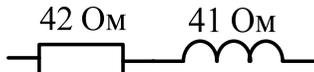
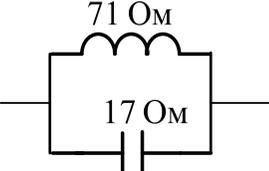
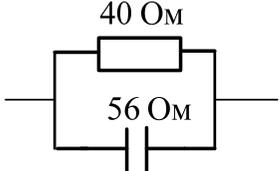
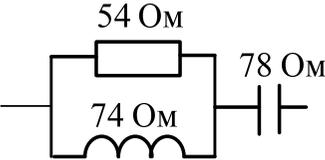
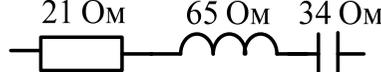
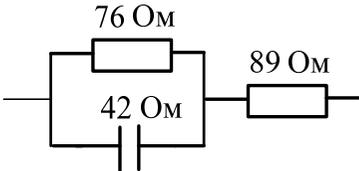
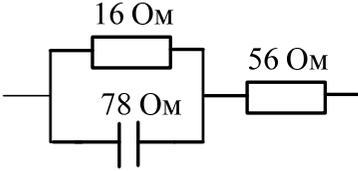
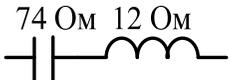
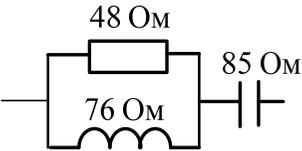
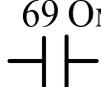
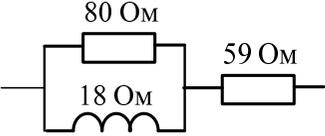
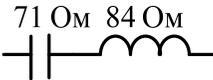
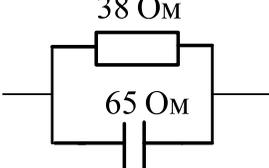
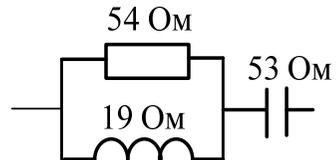
1	2	3	4	5	6	7
42	85	Δ				
43	105	Y				
44	125	Δ				
45	135	Y				
46	145	Δ				

1	2	3	4	5	6	7
47	155	Y				
48	165	Δ				
49	175	Y				
50	185	Δ				
51	195	Y				

1	2	3	4	5	6	7
52	205	Δ				
53	215	Y				
54	225	Δ				
55	235	Y				
56	245	Δ				

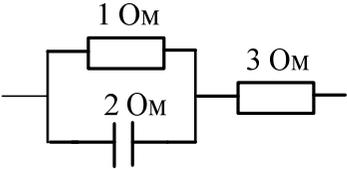
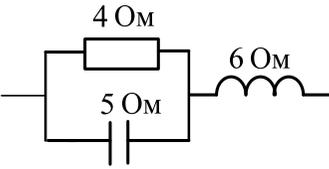
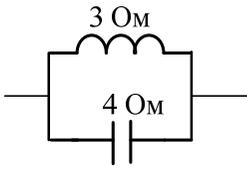
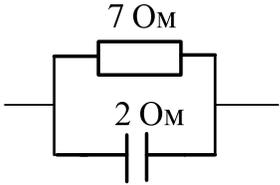
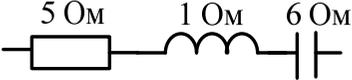
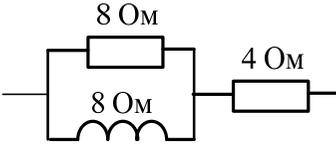
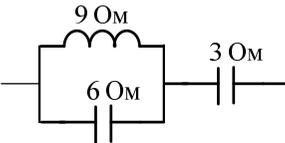
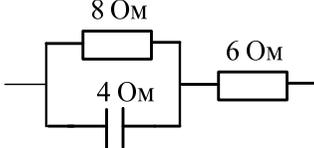
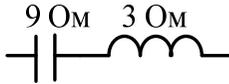
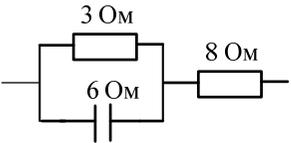
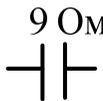
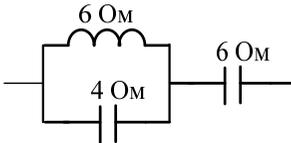
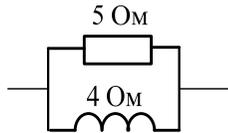
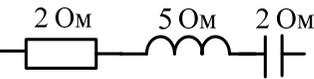
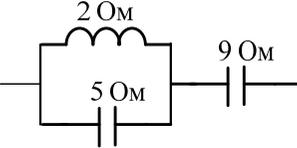
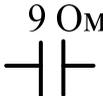
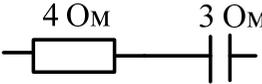
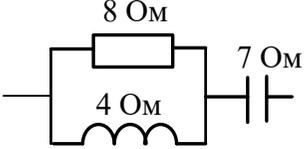
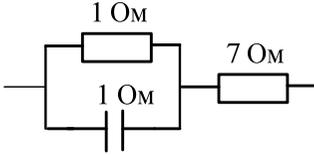
1	2	3	4	5	6	7
57	255	Y				
58	265	Δ				
59	275	Y				
60	285	Δ				
61	295	Y				

1	2	3	4	5	6	7
62	305	Δ				
63	315	Y				
64	325	Δ				
65	335	Y				
66	345	Δ				

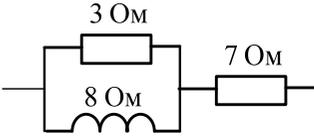
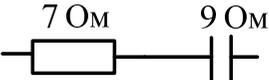
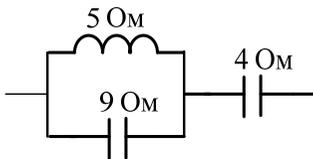
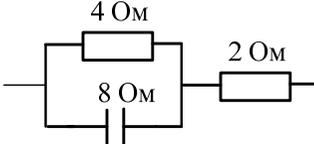
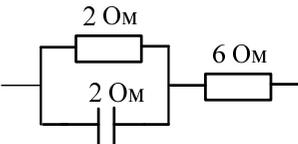
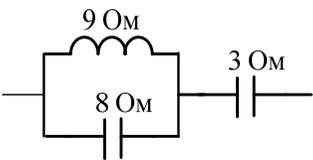
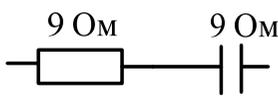
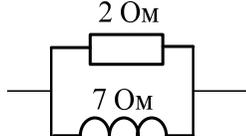
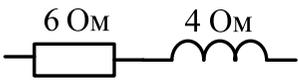
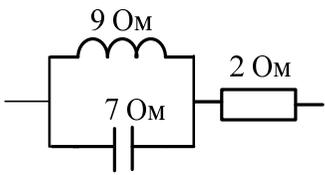
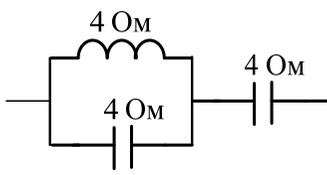
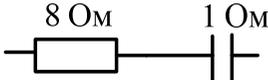
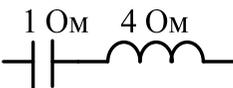
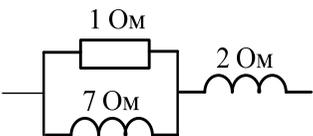
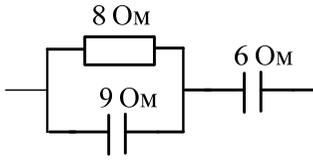
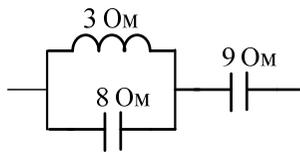
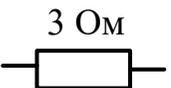
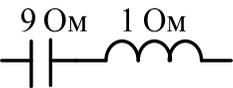
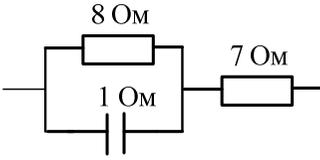
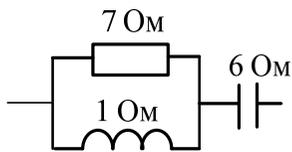
1	2	3	4	5	6	7
67	355	Y				
68	365	Δ				
69	375	Y				
70	385	Δ				
71	395	Y				

1	2	3	4	5	6	7
72	400	Y				
73	50	Δ				
74	60	Y				
75	70	Δ				
76	80	Y				

1	2	3	4	5	6	7
77	90	Δ				
78	100	Y				
79	110	Δ				
80	120	Y				
81	130	Δ				

1	2	3	4	5	6	7
82	140	Y				
83	150	Δ				
84	160	Y				
85	170	Δ				
86	180	Y				
87	190	Δ				

1	2	3	4	5	6	7
88	200	Y				
89	210	Δ				
90	220	Y				
91	230	Δ				
92	240	Y				
93	250	Δ				

1	2	3	4	5	6	7
94	260	Y				
95	270	Δ				
96	280	Y				
97	300	Δ				
98	310	Y				
100	360	Δ	