

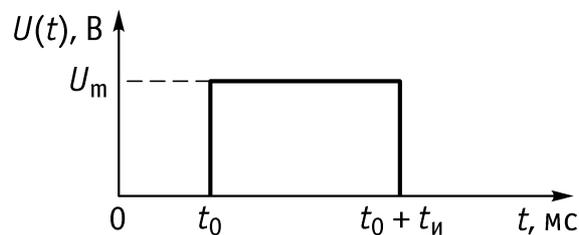
Задание 4

Спектральный метод анализа электрических цепей

1. Представить заданный сигнал как сумму сигналов вида  и т.д.
2. Записать преобразование Лапласа для заданного сигнала.
3. Зная преобразование Лапласа, найти комплексную спектральную плотность сигнала (выделить модуль и фазу).
4. Найти комплексную передаточную функцию заданной цепи, и записать АЧХ и ФЧХ цепи.
5. Определить комплексную спектральную плотность сигнала на выходе цепи.
6. Зная спектр выходного сигнала, найти выходной сигнал как функцию времени. Построить график сигнала.

Данные для схемы: $R = 1 \text{ кОм}$, $L = 1 \text{ Гн}$, $C = 1 \text{ мкФ}$.

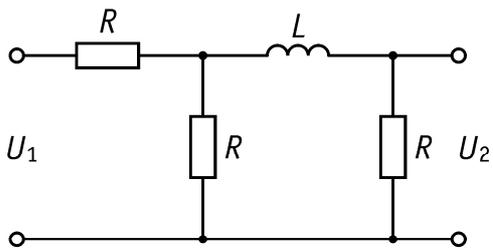
Входной сигнал:



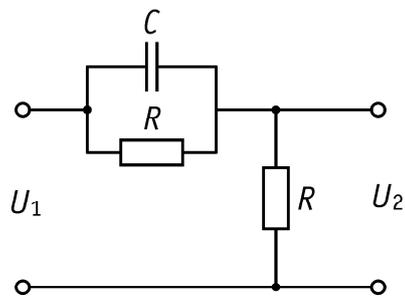
Исходные данные для входного сигнала:

№	$U_m, \text{ В}$	$t_0, \text{ мс}$	$t_n, \text{ мс}$
1	5	0	2
2	5	1	2
3	5	2	2
4	5	0	3
5	5	1	3
6	5	2	3
7	5	0	4
8	5	1	4
9	5	2	4
10	4	0	2
11	4	1	2
12	4	2	2
13	4	0	3
14	4	1	3
15	4	2	3
16	4	0	4
17	4	1	4
18	4	2	4

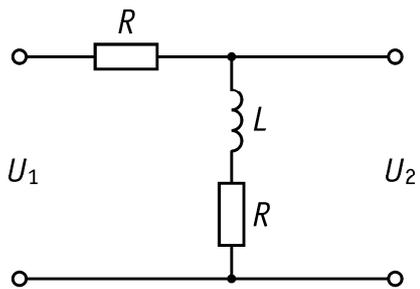
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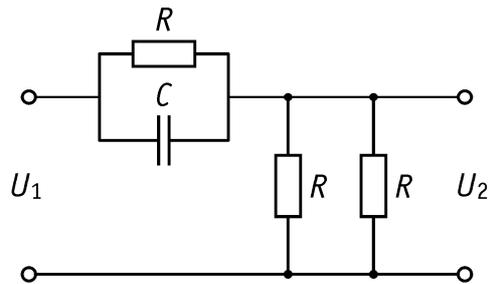
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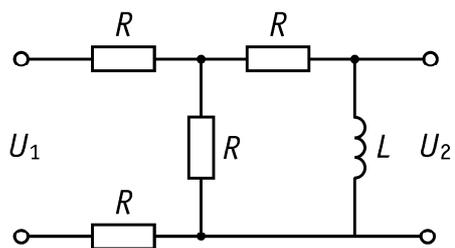
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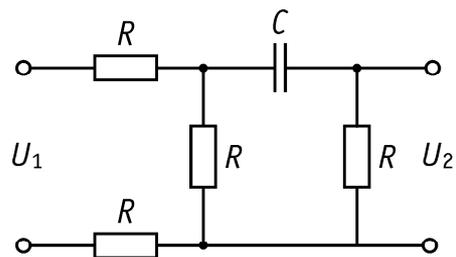
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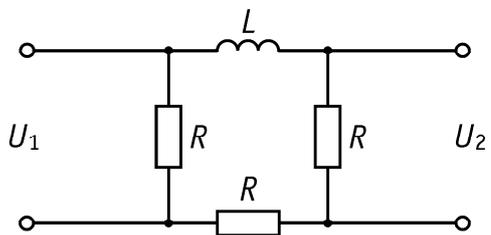
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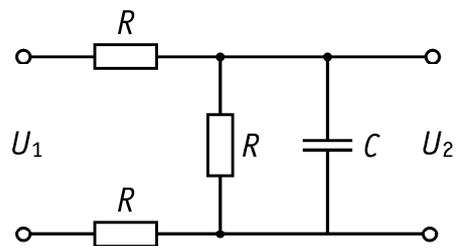
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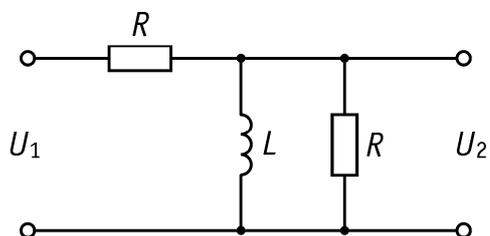
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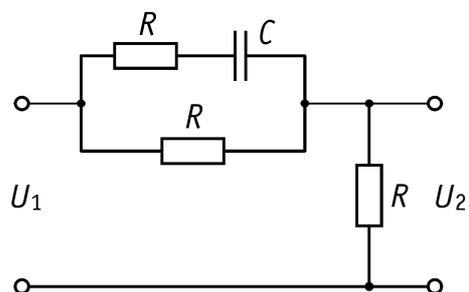
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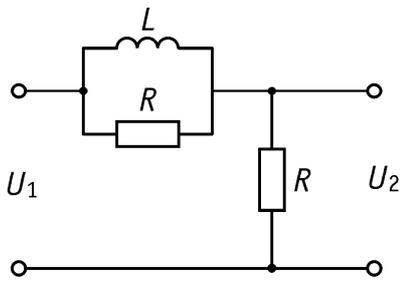
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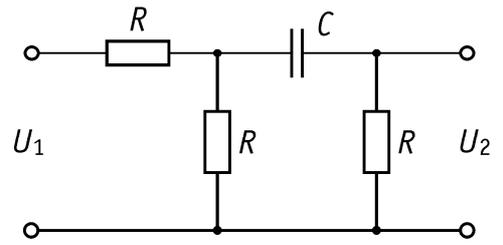
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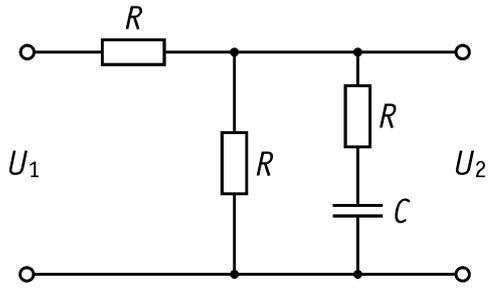
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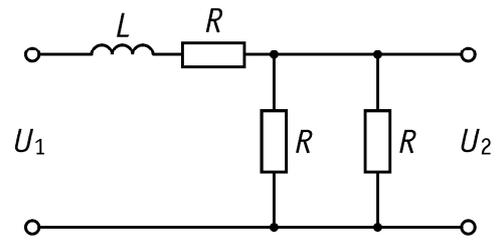
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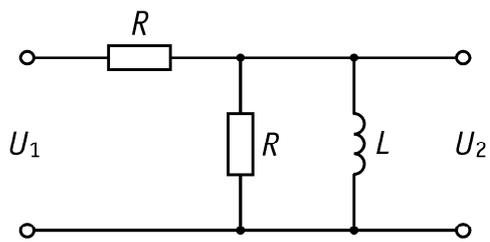
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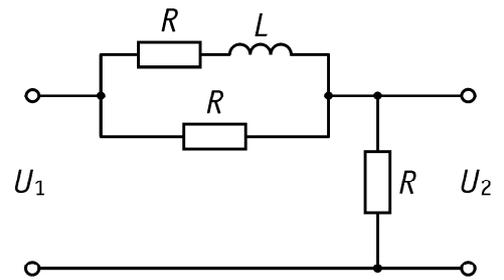
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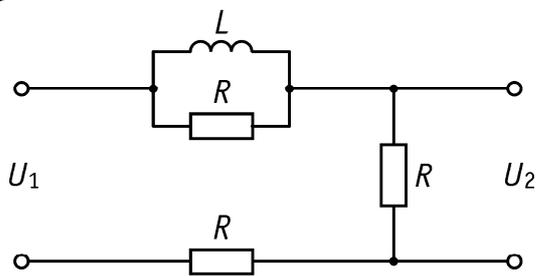
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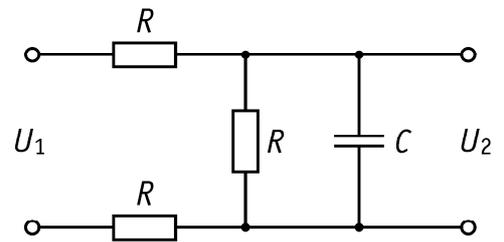
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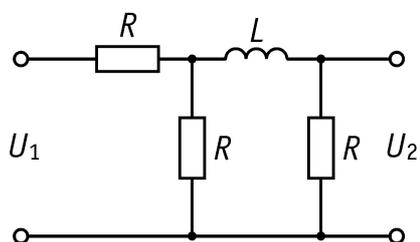
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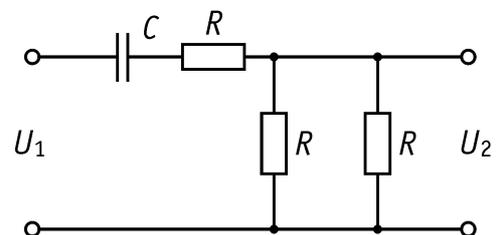
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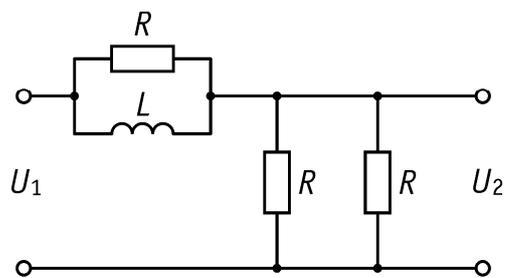
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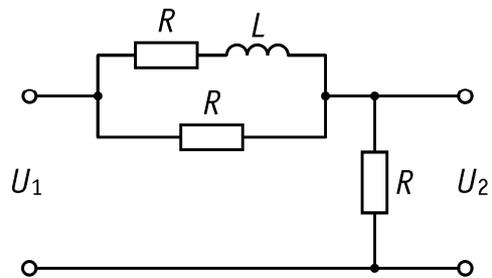
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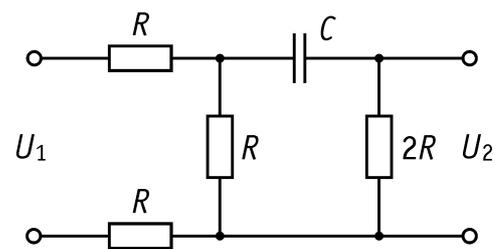
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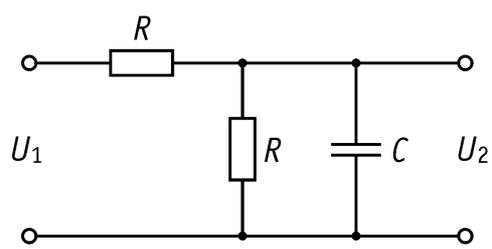
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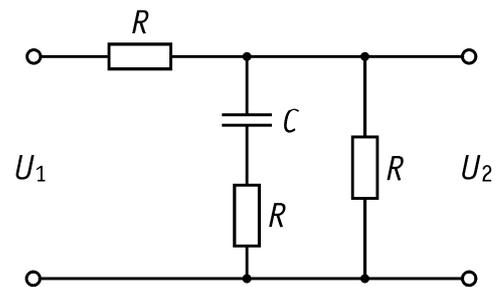
23



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26

