ДОМАШНЕЕ ЗАДАНИЕ № 1.

Методы анализа линейных разветвленных электрических цепей.

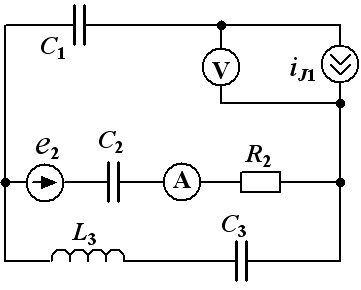
ЗАДАЧА 2

Для заданной схемы составить уравнения по законам Кирхгофа во временной и комплексной формах. Рассчитать токи и определить показания приборов. Построить векторную диаграмму токов для одного из узлов.

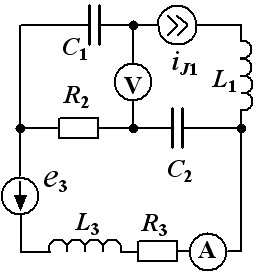
В ответе указать значения токов в комплексной и во временной формах.

Единицы измерения: *e* [В], *i* [А], *R* [Ом], *L* [мГн], *C* [мкФ].

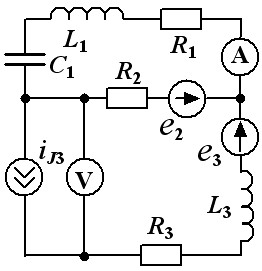
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | *e*2 | *J*1 | *C*1 | *R*2 | *C*2 | *C*3 | *L*3 |
| а |  |  | 100 | 10 | 100 | 50 | 10 |



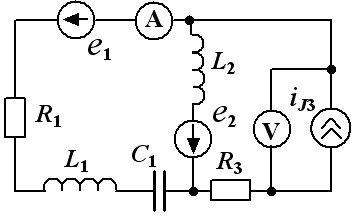
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| 2 | *J*1 | *e*3 | *C*1 | *L*1 | *R*2 | *C*2 | *L*3 | *R*3 |
| а |  |  | 50 | 10 | 10 | 100 | 20 | 20 |



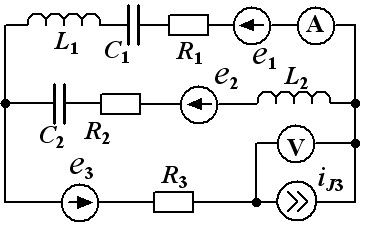
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | *e*2 | *J*3 | *e*3 | *R*1 | *L*1 | *C*1 | *R*2 | *L*3 | *R*3 |
| а |  |  |  | 30 | 50 | 50 | 70 | 10 | 10 |



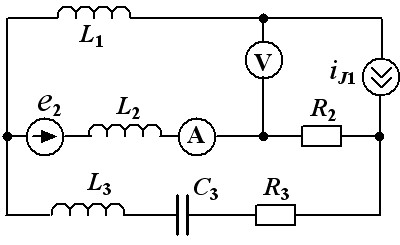
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | *e*1 | *e*2 | *J*3 | *R*1 | *L*1 | *C*1 | *L*2 | *R*3 |
| а |  |  |  | 20 | 10 | 100 | 10 | 30 |



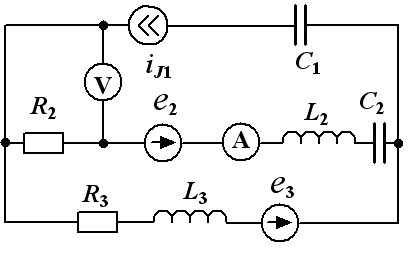
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | *e*1 | *e*2 | *J*3 | *e*3 | *R*1 | *L*1 | *C*1 | *R*2 | *L*2 | *C*2 | *R*3 |
| а |  |  |  |  | 10 | 70 | 10 | 20 | 40 | 50 | 20 |



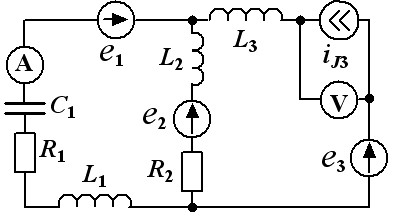
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | *e*2 | *J*1 | *L*1 | *L*2 | *R*2 | *L*3 | *C*3 | *R*3 |
| а |  |  | 10 | 10 | 10 | 10 | 100 | 10 |



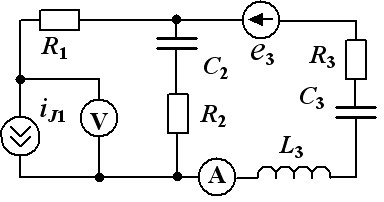
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | *J*1 | *e*2 | *e*3 | *C*1 | *L*2 | *C*2 | *R*2 | *R*3 | *L*3 |
| а |  |  |  | 50 | 80 | 10 | 20 | 20 | 20 |



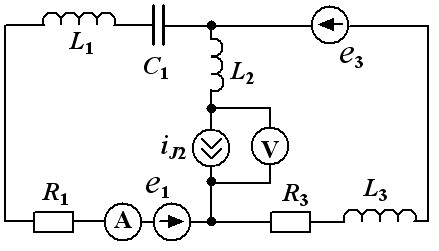
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | *e*1 | *e*2 | *J*3 | *e*3 | *L*1 | *R*1 | *C*1 | *R*2 | *L*2 | *L*3 |
| а |  |  |  |  | 40 | 20 | 50 | 10 | 10 | 15 |



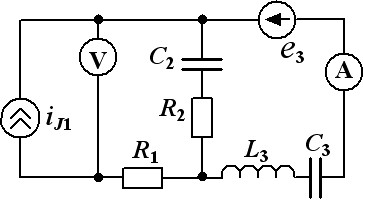
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | *J*1 | *e*3 | *R*1 | *R*2 | *C*2 | *R*3 | *L*3 | *C*3 |
| а |  |  | 10 | 20 | 50 | 10 | 20 | 100 |



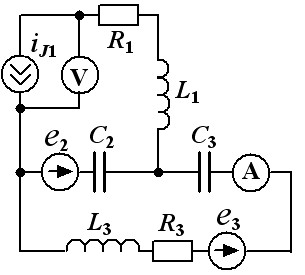
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| 10 | *e*1 | *J*2 | *e*3 | *R*1 | *L*1 | *C*1 | *L*2 | *R*3 | *L*3 |
| а |  |  |  | 20 | 10 | 100 | 50 | 20 | 20 |



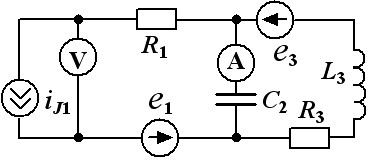
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| --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | *J*1 | *e*3 | *R*1 | *R*2 | *C*2 | *L*3 | *C*3 |
| а |  |  | 50 | 20 | 50 | 40 | 50 |



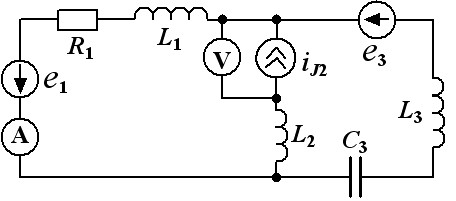
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | *J*1 | *e*2 | *e*3 | *R*1 | *L*1 | *C*2 | *R*3 | *L*3 | *C*3 |
| а |  |  |  | 20 | 10 | 25 | 20 | 30 | 100 |



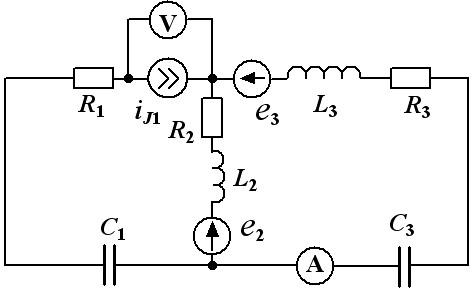
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| --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | *e*1 | *J*1 | *e*3 | *R*1 | *C*2 | *R*3 | *L*3 |
| а |  |  |  | 10 | 20 | 25 | 25 |



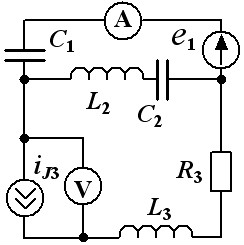
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | *e*1 | *J*2 | *e*3 | *R*1 | *L*1 | *L*2 | *L*3 | *C*3 |
| а |  |  |  | 20 | 20 | 50 | 40 | 50 |



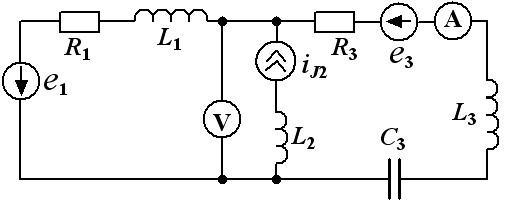
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | *J*1 | *e*2 | *e*3 | *R*1 | *C*1 | *L*2 | *R*2 | *L*3 | *C*3 | *R*3 |
| а |  |  |  | 50 | 100 | 20 | 20 | 10 | 100 | 20 |



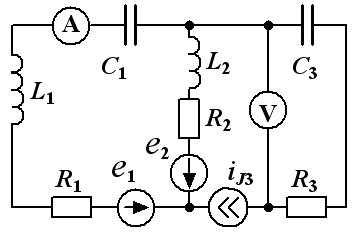
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | *e*1 | *J*3 | *C*1 | *C*2 | *L*2 | *R*3 | *L*3 |
| а |  |  | 20 | 100 | 40 | 50 | 10 |



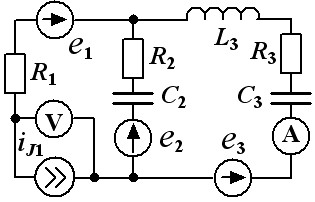
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | *e*1 | *J*2 | *e*3 | *R*1 | *L*1 | *L*2 | *L*3 | *R*3 | *C*3 |
| а |  |  |  | 10 | 10 | 50 | 30 | 20 | 20 |



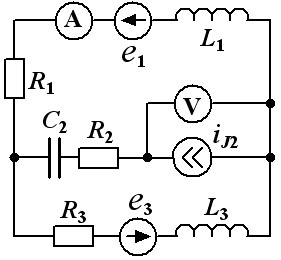
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | *e*1 | *e*2 | *J*3 | *C*1 | *L*1 | *R*1 | *R*2 | *L*2 | *C*3 | *R*3 |
| а |  |  |  | 50 | 10 | 10 | 10 | 20 | 50 | 50 |



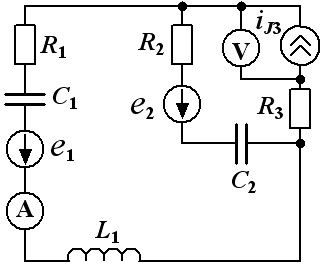
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | *J*1 | *e*1 | *e*2 | *e*3 | *R*1 | *R*2 | *C*2 | *L*3 | *C*3 | *R*3 |
| а |  |  |  |  | 50 | 10 | 50 | 10 | 50 | 30 |



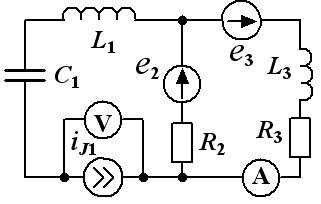
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | *e*1 | *J*2 | *e*3 | *R*1 | *L*1 | *C*2 | *R*2 | *R*3 | *L*3 |
| а |  |  |  | 60 | 20 | 100 | 50 | 40 | 40 |



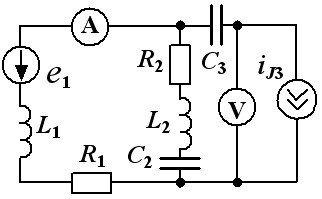
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | *e*1 | *e*2 | *J*3 | *R*1 | *L*1 | *C*1 | *R*2 | *C*2 | *R*3 |
| а |  |  |  | 10 | 20 | 100 | 10 | 100 | 50 |



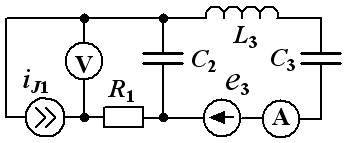
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | *J*1 | *e*2 | *e*3 | *С*1 | *L*1 | *R*2 | *R*3 | *L*3 |
| а |  |  |  | 100 | 50 | 20 | 20 | 20 |



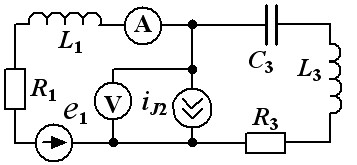
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | *e*1 | *J*3 | *L*1 | *R*1 | *L*2 | *C*2 | *R*2 | *C*3 |
| а |  |  | 20 | 10 | 40 | 50 | 20 | 100 |



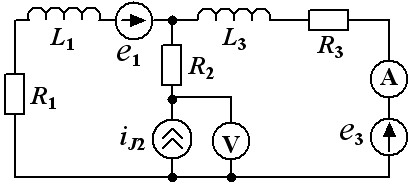
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| --- | --- | --- | --- | --- | --- | --- |
| 24 | *J*1 | *e*3 | *R*1 | *C*2 | *C*3 | *L*3 |
| а |  |  | 50 | 10 | 50 | 40 |



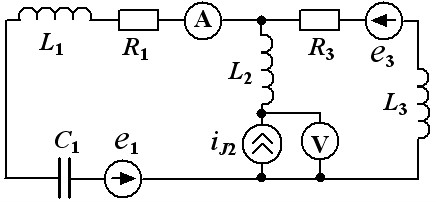
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| --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | *e*1 | *J*2 | *R*1 | *L*1 | *L*3 | *C*3 | *R*3 |
| а |  |  | 10 | 20 | 10 | 50 | 10 |



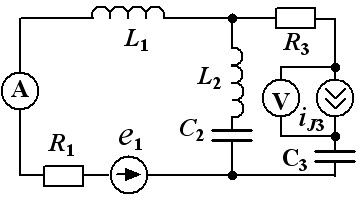
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | *e*1 | *J*2 | *e*3 | *R*1 | *L*1 | *R*2 | *L*3 | *R*3 |
| а |  |  |  | 10 | 10 | 50 | 20 | 40 |



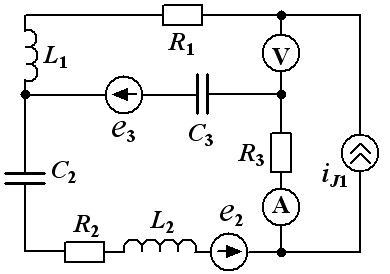
|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | *e*1 | *J*2 | *e*3 | *R*1 | *L*1 | *C*1 | *L*2 | *L*3 | *R*3 |
| а |  |  |  | 20 | 80 | 10 | 50 | 40 | 40 |



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | *e*1 | *J*3 | *R*1 | *L*1 | *L*2 | *C*2 | *C*3 | *R*3 |
| а |  |  | 20 | 20 | 10 | 50 | 50 | 50 |



|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | *J*1 | *e*2 | *e*3 | *R*1 | *L*1 | *R*2 | *L*2 | *C*2 | *R*3 | *C*3 |
| а |  |  |  | 50 | 10 | 20 | 70 | 20 | 20 | 50 |



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | *e*1 | *J*3 | *L*1 | *C*1 | *C*2 | *L*3 | *R*3 |
| а |  |  | 30 | 50 | 50 | 10 | 50 |

