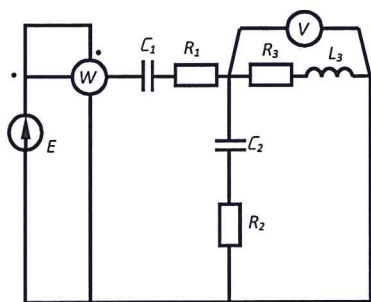


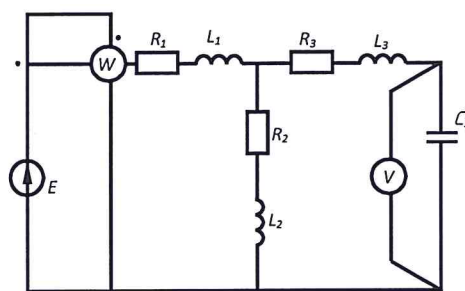
Задача №3

Для электрической схемы, изображенной на рисунке 3-1 – 3-17:

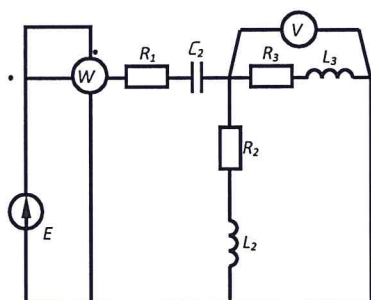
1. По заданным в таблице 3 параметрам и линейному напряжению определить фазные и линейные токи, ток в нейтральном проводе (для четырехпроводной схемы).
2. Рассчитать активную мощность всей цепи и в каждой фазе отдельно.
3. Построить векторную диаграмму токов и напряжений на комплексной плоскости.



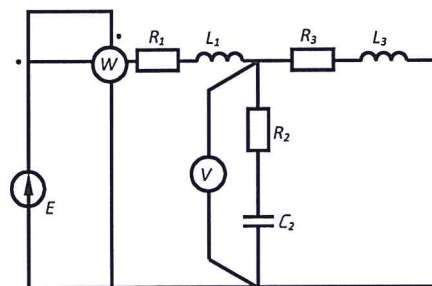
PUC. 2-1



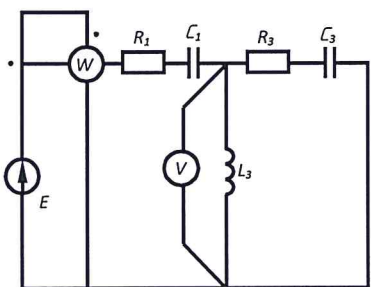
PUC. 2-2



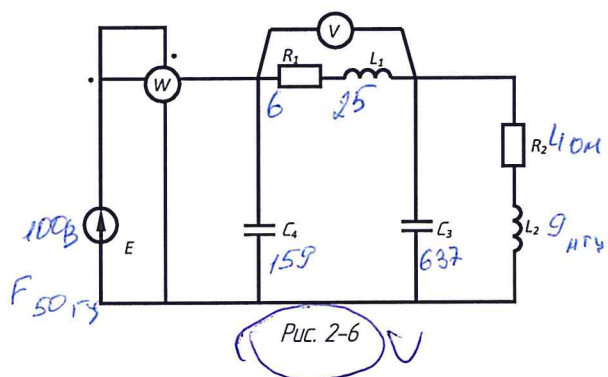
PUC. 2-3



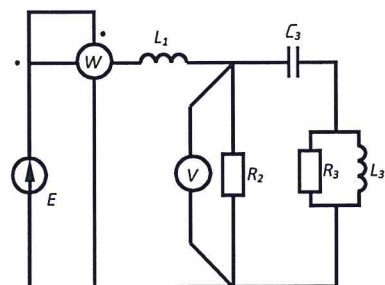
PUC. 2-4



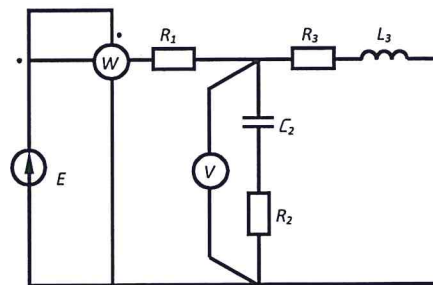
PUC. 2-5



PUC. 2-6



PUC. 2-7



PUC. 2-8

Задача №2

Для схемы, изображённой на рис. 2-1 – 2-10:

1. По заданным в таблице 2 параметрам и э.д.с. источника определить токи во всех ветвях цепи и напряжения на отдельных элементах, используя символический метод расчета.
2. Построить в масштабе на комплексной плоскости векторную диаграмму токов и напряжений.
3. Определить показания вольтметра и активную мощность, показываемую ваттметром.

Таблица 2

| Вар. | Рис. | Е, В | f, Гц | С1, мкФ | С2, мкФ | С3, мкФ | С4, мкФ | L1, мГц | L2, мГц | L3, мГц | R1, Ом | R2, Ом | R3, Ом |
|------|------|---------|----------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|
| 1 | 2-1 | 150 | 50 | 637 | 300 | - | - | - | - | 15,9 | 2 | 3 | 4 |
| 2 | 2-1 | 100 | 50 | 637 | 300 | - | - | - | - | 15,9 | 8 | 3 | 4 |
| 3 | 2-1 | 120 | 50 | 637 | 300 | - | - | - | - | 15,9 | 8 | 3 | 4 |
| 4 | 2-1 | 200 | 50 | 637 | 300 | - | - | - | - | 15,9 | 8 | 3 | 4 |
| 5 | 2-2 | 100 | 50 | - | - | 100 | - | 15,9 | 1000 | 115 | 10 | 4 | 100 |
| 6 | 2-2 | 50 | 50 | - | - | 100 | - | 15,9 | 1000 | 115 | 10 | 4 | 100 |
| 7 | 2-2 | 120 | 50 | - | - | 100 | - | 15,9 | 1000 | 115 | 10 | 4 | 100 |
| 8 | 2-2 | 200 | 50 | - | - | 100 | - | 15,9 | 1000 | 115 | 10 | 4 | 100 |
| 9 | 2-2 | 220 | 50 | - | - | 100 | - | 15,9 | 1000 | 115 | 10 | 4 | 100 |
| 10 | 2-3 | 50 | 50 | 637 | - | - | - | - | 15,9 | 6,37 | 5 | 10 | 8 |
| 11 | 2-3 | 100 | 50 | 637 | - | - | - | - | 15,9 | 6,37 | 5 | 10 | 8 |
| 12 | 2-3 | 120 | 50 | 637 | - | - | - | - | 15,9 | 6,37 | 5 | 10 | 8 |
| 13 | 2-3 | 200 | 50 | 637 | - | - | - | - | 15,9 | 6,37 | 5 | 10 | 8 |
| 14 | 2-3 | 220 | 50 | 637 | - | - | - | - | 15,9 | 6,37 | 5 | 10 | 8 |
| 15 | 2-4 | 150 | 50 | - | 1600 | - | - | 31,8 | - | 95 | 10 | 2 | 10 |
| 16 | 2-4 | 100 | 50 | - | 1600 | - | - | 31,8 | - | 95 | 10 | 8 | 10 |
| 17 | 2-4 | 120 | 50 | - | 1600 | - | - | 31,8 | - | 95 | 10 | 8 | 10 |
| 18 | 2-4 | 200 | 50 | - | 1600 | - | - | 31,8 | - | 95 | 10 | 8 | 10 |
| 19 | 2-4 | 220 | 50 | - | 1600 | - | - | 31,8 | - | 95 | 10 | 8 | 10 |
| 20 | 2-5 | 50 | 50 | 637 | 159 | - | - | - | - | 95 | 15 | 10 | - |
| 21 | 2-5 | 100 | 50 | 637 | 159 | - | - | - | - | 95 | 15 | 10 | - |
| 22 | 2-5 | 120 | 50 | 637 | 159 | - | - | - | - | 95 | 15 | 10 | - |
| 23 | 2-5 | 200 | 50 | 637 | 159 | - | - | - | - | 95 | 15 | 10 | - |
| 24 | 2-5 | 220 | 50 | 637 | 159 | - | - | - | - | 95 | 15 | 10 | - |
| 25 | 2-6 | 150 | 50 | - | - | 637 | 159 | 25 | 9 | - | 6 | 4 | - |
| 26 | 2-6 | 100 | 50 | - | - | 637 | 159 | 25 | 9 | - | 6 | 4 | - |
| 27 | 2-6 | 100 | 50 | - | - | 637 | 159 | 25 | 9 | - | 6 | 4 | - |
| 28 | 2-6 | 200 | 50 | - | - | 637 | 159 | 25 | 9 | - | 6 | 4 | - |
| 29 | 2-6 | 220 | 50 | - | - | 637 | 159 | 25 | 9 | - | 6 | 4 | - |
| 30 | 2-7 | 50 | 50 | - | 637 | - | - | 19,1 | - | 31,8 | 40 | - | 40 |
| 31 | 2-7 | 100 | 50 | - | 637 | - | - | 19,1 | - | 31,8 | 40 | - | 10 |
| 32 | 2-7 | 120 | 50 | - | 637 | - | - | 19,1 | - | 31,8 | 40 | - | 10 |
| 33 | 2-7 | 200 | 50 | - | 637 | - | - | 19,1 | - | 31,8 | 40 | - | 40 |
| 34 | 2-7 | 220 | 50 | - | 637 | - | - | 15,9 | - | 31,8 | 40 | - | 10 |
| 35 | 2-8 | 50 | 50 | - | 318 | - | - | 15,9 | - | - | 8 | 10 | 4 |
| 36 | 2-8 | 100 | 50 | - | 318 | - | - | 15,9 | - | - | 8 | 10 | 4 |
| 37 | 2-8 | 150 | 50 | - | 318 | - | - | 15,9 | - | - | 8 | 10 | 4 |
| 38 | 2-8 | 200 | 50 | - | 318 | - | - | 15,9 | - | - | 8 | 10 | 4 |
| 39 | 2-8 | 220 | 50 | - | 318 | - | - | 15,9 | - | - | 8 | 10 | 4 |
| 40 | 2-9 | 50 | 50 | - | 318 | - | - | 9,55 | - | - | 4 | 40 | 40 |
| 41 | 2-9 | 100 | 50 | - | 318 | - | - | 9,55 | - | - | 4 | 40 | 4 |
| 42 | 2-9 | 120 | 50 | - | 318 | - | - | 9,55 | - | - | 4 | 40 | 4 |
| 43 | 2-9 | 200 | 50 | - | 318 | - | - | 9,55 | - | - | 40 | 10 | 40 |
| 44 | 2-9 | 220 | 50 | - | 318 | - | - | 9,55 | - | - | 40 | 10 | 40 |
| 45 | 2-10 | 50 | 50 | - | 159 | - | - | 15,9 | - | 31,8 | 35 | 20 | - |
| 46 | 2-10 | 100 | 50 | - | 159 | - | - | 15,9 | - | 31,8 | 35 | 20 | - |
| 47 | 2-10 | 120 | 50 | - | 159 | - | - | 15,9 | - | 31,8 | 35 | 20 | - |
| 48 | 2-10 | 200 | 50 | - | 159 | - | - | 15,9 | - | 31,8 | 35 | 20 | - |
| 49 | 2-10 | 220 | 50 | - | 159 | - | - | 15,9 | - | 31,8 | 35 | 20 | - |
| 50 | 2-10 | 50 | 50 | - | 318 | - | - | 15,9 | - | 31,8 | 5 | 10 | - |

Таблица 3

| Вар. | Рис. | U _л В | R _a ОМ | R _b ОМ | R _c ОМ | X _a ОМ | X _b ОМ | X _c ОМ | R _{ab} ОМ | R _{bc} ОМ | R _{cb} ОМ | X _{ab} ОМ | X _{bc} ОМ | X _{cb} ОМ |
|------|------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 3-1 | 220 | 8 | 8 | 8 | 6 | 6 | 6 | - | - | - | - | - | - |
| 2 | 3-1 | 380 | 8 | 8 | 8 | 6 | 6 | 6 | - | - | - | - | - | - |
| 3 | 3-2 | 127 | 3 | 4 | 6 | 4 | 3 | 8 | - | - | - | - | - | - |
| 4 | 3-2 | 220 | 8 | 4 | 6 | 4 | 3 | 8 | - | - | - | - | - | - |
| 5 | 3-2 | 380 | 8 | 4 | 6 | 4 | 3 | 8 | - | - | - | - | - | - |
| 6 | 3-3 | 127 | 4 | 8 | 6 | 3 | 4 | 8 | - | - | - | - | - | - |
| 7 | 3-3 | 220 | 4 | 8 | 6 | 3 | 4 | 9 | - | - | - | - | - | - |
| 8 | 3-3 | 380 | 4 | 3 | 6 | 8 | 4 | 8 | - | - | - | - | - | - |
| 9 | 3-4 | 127 | 16,8 | 8 | 8 | 14,2 | 6 | 4 | - | - | - | - | - | - |
| 10 | 3-4 | 220 | 16,8 | 8 | 8 | 14,2 | 6 | 4 | - | - | - | - | - | - |
| 11 | 3-4 | 380 | 16,8 | 8 | 8 | 8 | 6 | 4 | - | - | - | - | - | - |
| 12 | 3-5 | 127 | - | - | - | - | 10 | 10 | - | - | - | - | - | - |
| 13 | 3-5 | 220 | - | - | - | - | 10 | 10 | - | - | - | - | - | - |
| 14 | 3-5 | 380 | - | - | - | - | 10 | 10 | - | - | - | - | - | - |
| 15 | 3-6 | 127 | - | - | - | - | - | - | 8 | 8 | 8 | 6 | 6 | 6 |
| 16 | 3-6 | 220 | - | - | - | - | - | - | 8 | 8 | 8 | 6 | 6 | 6 |
| 17 | 3-6 | 380 | - | - | - | - | - | - | 8 | 8 | 8 | 6 | 6 | 6 |
| 18 | 3-7 | 127 | - | - | - | - | - | - | 8 | 4 | 6 | 4 | 3 | 8 |
| 19 | 3-7 | 220 | - | - | - | - | - | - | 8 | 4 | 6 | 4 | 3 | 8 |
| 20 | 3-7 | 380 | - | - | - | - | - | - | 8 | 4 | 6 | 4 | 3 | 8 |
| 21 | 3-8 | 127 | - | - | - | - | - | - | 4 | 8 | 6 | 3 | 4 | 8 |
| 22 | 3-8 | 220 | - | - | - | - | - | - | 4 | 8 | 6 | 3 | 4 | 8 |
| 23 | 3-8 | 380 | - | - | - | - | - | - | 4 | 8 | 6 | 3 | 4 | 8 |
| 24 | 3-9 | 127 | - | - | - | - | - | - | 16,8 | 8 | 3 | 14,2 | 6 | 4 |
| 25 | 3-9 | 220 | - | - | - | - | - | - | 16,8 | 8 | 3 | 14,2 | 6 | 4 |
| 26 | 3-9 | 380 | - | - | - | - | - | - | 16,8 | 8 | 8 | 14,2 | 6 | 4 |
| 27 | 3-10 | 127 | - | - | - | - | - | - | 10 | - | - | - | 10 | 10 |
| 28 | 3-10 | 220 | - | - | - | - | - | - | 10 | - | - | - | 10 | 10 |
| 29 | 3-10 | 380 | - | - | - | - | - | - | 10 | - | - | - | 10 | 10 |
| 30 | 3-11 | 127 | 10 | - | - | - | 10 | 10 | - | - | - | - | - | - |
| 31 | 3-11 | 220 | 10 | - | - | - | 10 | 10 | - | - | - | - | - | - |
| 32 | 3-11 | 380 | 10 | - | - | - | 10 | 10 | - | - | - | - | - | - |
| 33 | 3-12 | 127 | 15 | - | - | - | 5 | 5 | - | - | - | - | - | - |
| 34 | 3-12 | 220 | 15 | - | - | - | 5 | 5 | - | - | - | - | - | - |
| 35 | 3-12 | 380 | 15 | - | - | - | 5 | 5 | - | - | - | - | - | - |
| 36 | 3-13 | 127 | - | - | - | - | - | - | - | 3 | 8 | 4 | 6 | 8 |
| 37 | 3-13 | 220 | - | - | - | - | - | - | - | 3 | 8 | 4 | 6 | 8 |
| 38 | 3-13 | 380 | - | - | - | - | - | - | - | 3 | 8 | 4 | 6 | 8 |
| 39 | 3-14 | 127 | - | - | - | - | - | - | 8 | 4 | 8 | - | 6 | 10 |
| 40 | 3-14 | 220 | - | - | - | - | - | - | 8 | 4 | 8 | - | 6 | 10 |
| 41 | 3-14 | 380 | - | - | - | - | - | - | 8 | 4 | 8 | - | 6 | 10 |
| 42 | 3-15 | 127 | - | - | - | - | - | - | - | 5 | 6 | 5 | 8 | 4 |
| 43 | 3-15 | 220 | - | - | - | - | - | - | - | 5 | 6 | 5 | 8 | 4 |
| 44 | 3-15 | 380 | - | - | - | - | - | - | - | 5 | 6 | 5 | 3 | 4 |
| 45 | 3-16 | 127 | - | - | - | - | - | - | 5 | - | 6 | 10 | 8 | 4 |
| 46 | 3-16 | 220 | - | - | - | - | - | - | 5 | - | 6 | 10 | 8 | 4 |
| 47 | 3-16 | 380 | - | - | - | - | - | - | 5 | - | 6 | 10 | 8 | 4 |
| 48 | 3-17 | 127 | - | 3 | - | 15 | - | 10 | - | - | - | - | - | - |
| 49 | 3-17 | 220 | - | 3 | - | 15 | - | 10 | - | - | - | - | - | - |
| 50 | 3-17 | 380 | - | 3 | - | 15 | - | 10 | - | - | - | - | - | - |