3. Построения остовов кротчайших маршрутов, используя алгоритмы Прима и Краскала. В качестве весов ребер использовать элементы вспомогательной матрицы Y.

Y :

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| i/j | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1 | 0 | 15 | 6 | 7 | 2 | 1 | 3 | 12 | 7 | 5 | 9 | 10 | 3 |
| 2 | 15 | 0 | 9 | 22 | 13 | 16 | 12 | 27 | 8 | 10 | 24 | 25 | 18 |
| 3 | 6 | 9 | 0 | 13 | 4 | 7 | 3 | 18 | 1 | 1 | 15 | 16 | 9 |
| 4 | 7 | 22 | 13 | 0 | 9 | 6 | 10 | 5 | 14 | 12 | 2 | 3 | 4 |
| 5 | 2 | 13 | 4 | 9 | 0 | 3 | 1 | 14 | 5 | 3 | 11 | 12 | 5 |
| 6 | 1 | 16 | 7 | 6 | 3 | 0 | 4 | 11 | 8 | 6 | 8 | 9 | 2 |
| 7 | 3 | 12 | 3 | 10 | 1 | 4 | 0 | 15 | 4 | 2 | 12 | 13 | 6 |
| 8 | 12 | 27 | 18 | 5 | 14 | 11 | 15 | 0 | 19 | 17 | 3 | 2 | 9 |
| 9 | 7 | 8 | 1 | 14 | 5 | 8 | 4 | 19 | 0 | 2 | 16 | 17 | 10 |
| 10 | 5 | 10 | 1 | 12 | 3 | 6 | 2 | 17 | 2 | 0 | 14 | 15 | 8 |
| 11 | 9 | 24 | 15 | 2 | 11 | 8 | 12 | 3 | 16 | 14 | 0 | 1 | 6 |
| 12 | 10 | 25 | 16 | 3 | 12 | 9 | 13 | 2 | 17 | 15 | 1 | 0 | 7 |
| 13 | 3 | 18 | 9 | 4 | 5 | 2 | 6 | 9 | 10 | 8 | 6 | 7 | 0 |

Граф G2 :

Алгоритм Краскала

Список ребер :

е1 = (1,3), (4,6), (6,10), (7,13), (11,13) = 6.

е2 = (1,4), (1,9), (12,13) = 7.

е3 = (1,8), (2,7), (5,12) = 12.

е4 = (4,9), (5,8), (10,11) = 14.

е6 = (2,11) = 24.

Остов кратчайших маршрутов: М = ((1,3), (4,6), (6,10), (7,13), (11,13), (1,4), (1,9), (12,13), (1,8), (2,7), (5,12), (4,9), (5,8), (10,11), (2,11)).

Общий суммарный вес  = 63.

Алгоритм Прима

Список ребер :

е1 = (1,3), (6,10), (11,13) = 6.

е2 = (1,4), (1,9), (3,6), (12,13) = 7.

е3 = (1,8), (5,12), (7,11) = 12.

е4 = (5,8), (10,11) = 14.

е6 = (2,11) = 24.

Остов кратчайших маршрутов: М = ((1,3), (1,4), (3,6), (6,10), (10,11), (11,7), (11,2), (11,13), (13,12), (12,5), (5,8), (8,1), (1,9)).

Общий суммарный вес  = 63.