Некрутенко Максим, P3106, Вариант – 47 Домашняя работа №3

Алгоритм Франка – Фриша Исходная матрица соединений R:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **e1** | **e2** | **e3** | **e4** | **e5** | **e6** | **e7** | **e8** | **e9** | **e10** | **e11** | **e12** |
| **e1** | 0 | 3 |  |  | 3 | 3 |  | 5 | 2 |  |  |  |
| **e2** | 3 | 0 |  | 2 |  | 1 |  | 3 |  |  | 3 |  |
| **e3** |  |  | 0 | 4 | 5 | 4 |  |  | 4 | 2 |  |  |
| **e4** |  | 2 | 4 | 0 |  | 1 |  | 2 |  | 1 | 4 |  |
| **e5** | 3 |  | 5 |  | 0 |  |  | 3 |  |  | 1 | 1 |
| **e6** | 3 | 1 | 4 | 1 |  | 0 |  |  |  | 5 | 3 | 4 |
| **e7** |  |  |  |  |  |  | 0 |  | 5 | 5 | 1 | 1 |
| **e8** | 5 | 3 |  | 2 | 3 |  |  | 0 |  |  |  | 2 |
| **e9** | 2 |  | 4 |  |  |  | 5 |  | 0 |  | 1 | 3 |
| **e10** |  |  | 2 | 1 |  | 5 | 5 |  |  | 0 |  |  |
| **e11** |  | 3 |  | 4 | 1 | 3 | 1 |  | 1 |  | 0 |  |
| **e12** |  |  |  |  | 1 | 4 | 1 | 2 | 3 |  |  | 0 |

**Найти** (e1-e12) путь с наибольшей пропускной способностью в графе

s=1 t=12

i=1, Qi=5

Закорачиваем рёбра:

[(1, 8), (3, 5), (6, 10), (7, 9), (7, 10)]

{1: {8, 1}, 2: {2}, 3: {3, 5}, 4: {4}, 5: {3, 5}, 6: {9, 10, 6, 7}, 7: {9, 10, 6, 7}, 8: {8, 1}, 9: {9, 10, 6, 7}, 10: {9, 10, 6, 7}, 11: {11}, 12: {12}}

i=2, Qi=3

Закорачиваем рёбра:

[(1, 2), (1, 5), (1, 6), (2, 8), (2, 11), (3, 4), (3, 6), (3, 9), (4, 11), (5, 8), (6, 11), (6, 12), (9, 12)]

{1: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

2: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

3: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

4: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

5: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

6: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

7: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

8: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

9: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

10: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

11: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12},

12: {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}}

Ответ:

Q=3