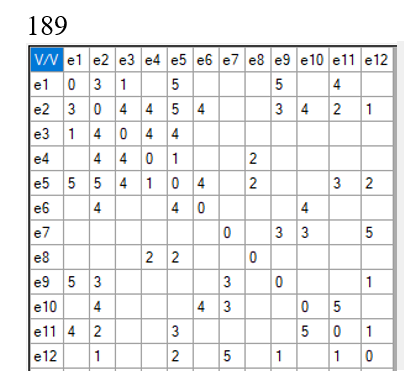
Домашняя работа №2

189 вариант

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1) 2) 3)

|  |  |  |
| --- | --- | --- |
|  | *e1* | 0+ |
|  | *e2* | *∞* |
|  | *e3* | *∞* |
|  | *e4* | *∞* |
|  | *e5* | *∞* |
| *L=* | *e6* | *∞* |
|  | *e7* | *∞* |
|  | *e8* | *∞* |
|  | *e9*  *e10*  *e11*  *e12* | *∞* |
| *∞* |
| *∞* |
| *∞* |

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

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

1. l(e1) = 0+, l(ei)= ∞, для всех i ≠ 1.
2. Не все вершины имеют постоянные пометки

Гр = {e2, e3, e5, e9, e11 }

l(e2) = min[∞,0 + 3] = 3,

l(e3) = min[∞,0 + 1] = 1,

l(e5) = min[∞,0 + 5] = 5,

l(e9) = min[∞,0 + 5] = 5,

l(e11) = min[∞,0 + 4] = 4,

min[l(ei)] = l(e3) = 1+ постоянная пометка

1. Не все вершины имеют постоянные пометки

Гр = {e1, e2, e4, e5 }

l(e2) = min[3,1+ + 4] = 3,

l(e4) = min[∞,1+ + 4] = 5,

l(e5) = min[5,1+ + 4] = 5

min[l(ei)] = l(e2) = 3+ постоянная пометка

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 |
|  | *e1* | 0+ |  |  |  |
|  | *e2* | *∞* | *3* | *3+* |  |
|  | *e3* | *∞* | *1+* |  |  |
|  | *e4* | *∞* | *∞* | *5* | *5* |
|  | *e5* | *∞* | *5* | *5* | *5* |
| *L=* | *e6* | *∞* | *∞* | *∞* | *7* |
|  | *e7* | *∞* | *∞* | *∞* | *∞* |
|  | *e8* | *∞* | *∞* | *∞* | *∞* |
|  | *e9* | *∞* | *5* | *5* | *5* |
|  | *e10* | *∞* | *∞* | *∞* | *7* |
|  | *e11* | *∞* | *4* | *4* | *4+* |
|  | *e12* | *∞* | *∞* | *∞* | *4* |

1. Не все вершины имеют постоянные пометки

Гр = { e1, e3, e4, e5, e6, e9, e10, e11, e12}

l(e4) = min[5,3+ + 4] = 5 ,

l(e5) = min[5, 3+ + 5] = 5 ,

l(e6) = min[*∞*,3+ + 4] = 7 ,

l(e9) = min[*5*,3+ + 3] = 5,

l(e10) = min[*∞*, 3+ +4] = 7,

l(e11) = min[*4*,3+ + 2] = 4,

l(e12) = min[*∞*, 3+ + 1] = 4

min[l(ei)] = l(e11) = 4+ постоянная пометка

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 |
|  | *e1* | 0+ |  |  |  |  |
|  | *e2* | *∞* | *3* | *3+* |  |  |
|  | *e3* | *∞* | *1+* |  |  |  |
|  | *e4* | *∞* | *∞* | *5* | *5* | *5* |
|  | *e5* | *∞* | *5* | *5* | *5* | *5* |
| *L=* | *e6* | *∞* | *∞* | *∞* | *7* | *7* |
|  | *e7* | *∞* | *∞* | *∞* | *∞* | *∞* |
|  | *e8* | *∞* | *∞* | *∞* | *∞* | *∞* |
|  | *e9* | *∞* | *5* | *5* | *5* | *5* |
|  | *e10* | *∞* | *∞* | *∞* | *7* | *7* |
|  | *e11* | *∞* | *4* | *4* | *4+* |  |
|  | *e12* | *∞* | *∞* | *∞* | *4* | *4+* |

1. Не все вершины имеют постоянные пометки

Гр = { e1, e2, e5, e10, e12}

l(e5) = min[5, 4+ +4] = 7,

l(e10) = min[*7*, 4+ + 2] = 4,

l(e12) = min[*∞*, 4+ + 1] = 4

min[l(ei)] = l(e12) = 4+ постоянная пометка

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 |
|  | *e1* | 0+ |  |  |  |  |  |
|  | *e2* | *∞* | *3* | *3+* |  |  |  |
|  | *e3* | *∞* | *1+* |  |  |  |  |
|  | *e4* | *∞* | *∞* | *5* | *5* | *5* | *5+* |
|  | *e5* | *∞* | *5* | *5* | *5* | *5* | *5* |
| *L=* | *e6* | *∞* | *∞* | *∞* | *7* | *7* | *7* |
|  | *e7* | *∞* | *∞* | *∞* | *∞* | *∞* | *9* |
|  | *e8* | *∞* | *∞* | *∞* | *∞* | *∞* | *∞* |
|  | *e9* | *∞* | *5* | *5* | *5* | *5* | *5* |
|  | *e10* | *∞* | *∞* | *∞* | *7* | *7* | *7* |
|  | *e11* | *∞* | *4* | *4* | *4+* |  |  |
|  | *e12* | *∞* | *∞* | *∞* | *4* | *4+* |  |

1. Не все вершины имеют постоянные пометки

Гр = { e2, e5, e7, e9, e11}

l(e5) = min[5, 4+ +2] = 5,

l(e7) = min[*∞*, 4+ + 5] = 9,

l(e9) = min [5, 4+ + 1] = 5

min[l(ei)] = l(e4) = 5+ постоянная пометка

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|  | *e1* | 0+ |  |  |  |  |  |  |
|  | *e2* | *∞* | *3* | *3+* |  |  |  |  |
|  | *e3* | *∞* | *1+* |  |  |  |  |  |
|  | *e4* | *∞* | *∞* | *5* | *5* | *5* | *5+* |  |
|  | *e5* | *∞* | *5* | *5* | *5* | *5* | *5* | *5+* |
| *L=* | *e6* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7* |
|  | *e7* | *∞* | *∞* | *∞* | *∞* | *∞* | *9* | *9* |
|  | *e8* | *∞* | *∞* | *∞* | *∞* | *∞* | *∞* | *7* |
|  | *e9* | *∞* | *5* | *5* | *5* | *5* | *5* | *5* |
|  | *e10* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7* |
|  | *e11* | *∞* | *4* | *4* | *4+* |  |  |  |
|  | *e12* | *∞* | *∞* | *∞* | *4* | *4+* |  |  |

1. Не все вершины имеют постоянные пометки

Гр = { e2, e3, e5, e8}

l(e5) = min[5,5 ++ 1 ] = 5,

l(e8) = min[*∞*,5++ 2] = 7,

min[l(ei)] = l(e5) = 5+ постоянная пометка

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|  | *e1* | 0+ |  |  |  |  |  |  |  |
|  | *e2* | *∞* | *3* | *3+* |  |  |  |  |  |
|  | *e3* | *∞* | *1+* |  |  |  |  |  |  |
|  | *e4* | *∞* | *∞* | *5* | *5* | *5* | *5+* |  |  |
|  | *e5* | *∞* | *5* | *5* | *5* | *5* | *5* | *5+* |  |
| *L=* | *e6* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7* | *7* |
|  | *e7* | *∞* | *∞* | *∞* | *∞* | *∞* | *9* | *9* | *9* |
|  | *e8* | *∞* | *∞* | *∞* | *∞* | *∞* | *∞* | *7* | *7* |
|  | *e9* | *∞* | *5* | *5* | *5* | *5* | *5* | *5* | *5+* |
|  | *e10* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7* | *7* |
|  | *e11* | *∞* | *4* | *4* | *4+* |  |  |  |  |
|  | *e12* | *∞* | *∞* | *∞* | *4* | *4+* |  |  |  |

1. Не все вершины имеют постоянные пометки

Гр = { e1,e2,e3,e4,e6,e8,e11,e12}

l(e6) = min[7,5 ++ 1 ] = 7,

l(e8) = min[*7*,5++ 2] = 7,

min[l(ei)] = l(e9) =5+ постоянная пометка

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|  | *e1* | 0+ |  |  |  |  |  |  |  |  |
|  | *e2* | *∞* | *3* | *3+* |  |  |  |  |  |  |
|  | *e3* | *∞* | *1+* |  |  |  |  |  |  |  |
|  | *e4* | *∞* | *∞* | *5* | *5* | *5* | *5+* |  |  |  |
|  | *e5* | *∞* | *5* | *5* | *5* | *5* | *5* | *5+* |  |  |
| *L=* | *e6* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7* | *7* | *7+* |
|  | *e7* | *∞* | *∞* | *∞* | *∞* | *∞* | *9* | *9* | *9* | *8* |
|  | *e8* | *∞* | *∞* | *∞* | *∞* | *∞* | *∞* | *7* | *7* | *7* |
|  | *e9* | *∞* | *5* | *5* | *5* | *5* | *5* | *5* | *5+* |  |
|  | *e10* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7* | *7* | *7* |
|  | *e11* | *∞* | *4* | *4* | *4+* |  |  |  |  |  |
|  | *e12* | *∞* | *∞* | *∞* | *4* | *4+* |  |  |  |  |

1. Не все вершины имеют постоянные пометки

Гр = { e1, e2, e7, e12}

l(e7) = min[9,5++3] = 8

min[l(ei)] = l(e6) = 7+ постоянная пометка

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|  | *e1* | 0+ |  |  |  |  |  |  |  |  |  |  |  |
|  | *e2* | *∞* | *3* | *3+* |  |  |  |  |  |  |  |  |  |
|  | *e3* | *∞* | *1+* |  |  |  |  |  |  |  |  |  |  |
|  | *e4* | *∞* | *∞* | *5* | *5* | *5* | *5+* |  |  |  |  |  |  |
|  | *e5* | *∞* | *5* | *5* | *5* | *5* | *5* | *5+* |  |  |  |  |  |
| *L=* | *e6* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7* | *7* | *7+* |  |  |  |
|  | *e7* | *∞* | *∞* | *∞* | *∞* | *∞* | *9* | *9* | *9* | *8* | *8* | *8* | *8+* |
|  | *e8* | *∞* | *∞* | *∞* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7+* |  |  |
|  | *e9* | *∞* | *5* | *5* | *5* | *5* | *5* | *5* | *5+* |  |  |  |  |
|  | *e10* | *∞* | *∞* | *∞* | *7* | *7* | *7* | *7* | *7* | *7* | *7* | *7+* |  |
|  | *e11* | *∞* | *4* | *4* | *4+* |  |  |  |  |  |  |  |  |
|  | *e12* | *∞* | *∞* | *∞* | *4* | *4+* |  |  |  |  |  |  |  |

1. Не все вершины имеют постоянные пометки

Гр = { e2, e5, e10}

l(e10) = min[7,7++4] = 7

min[l(ei)] = l(e8) =7+ постоянная пометка

1. Не все вершины имеют постоянные пометки

Гр = { e4, e5} - эти вершины с постоянными местками, идем дальше

min[l(ei)] = l(e10) = 6*+* постоянная пометка

1. Не все вершины имеют постоянные пометки

Гр = { e2, e6, e7, e11}

l(e7) = min[8,7++3] = 8

min[l(ei)] = l(e7) = 8+ постоянная пометка

**Все вершины имеют постоянные пометки**

Найденные кратчайшие пути:

*e1* → *e1* = 0, *e1* → *e2* = 3(1-2),

*e1* → *e3* = 1(1-3), *e1* → *e4* = 5(1-3-4),

*e1* → *e5* = 5(1-5), *e1* → *e6* =7(1-2-6),

*e1* → *e7* = 8(1-9-7), *e1* → *e8* = 7(1-3-4-8),

*e1* → *e9* = 5(1-9), *e1* → *e10* = 7(1-2-10),

*e1* → *e11* = 4(1-11), *e1* → *e12* = 4(1-2-12)