# Информация и информационные процессы

## Практическая работа 4

## Графы

1. Постройте матрицы смежности и весовые матрицы для каждого графа:

|  |  |  |  |
| --- | --- | --- | --- |
| а) | б) | в) | г) |
| 2 1 41  | 3 4 1 1 2  | 2 1 4 3  | 2 4 13 1  |

|  |  |  |  |
| --- | --- | --- | --- |
| Матрицы смежности: |  |  |  |
| а) | б) | в) | г) |
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| --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** |
| **A** |  |  |  |  |
| **B** |  |  |  |  |
| **C** |  |  |  |  |
| **D** |  |  |  |  |

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|  | **A** | **B** | **C** | **D** |
| **A** |  |  |  |  |
| **B** |  |  |  |  |
| **C** |  |  |  |  |
| **D** |  |  |  |  |

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|  | **A** | **B** | **C** | **D** |
| **A** |  |  |  |  |
| **B** |  |  |  |  |
| **C** |  |  |  |  |
| **D** |  |  |  |  |

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| --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** |
| **A** |  |  |  |  |
| **B** |  |  |  |  |
| **C** |  |  |  |  |
| **D** |  |  |  |  |

 |
| Весовые матрицы |  |  |  |
| а) | б) | в) | г) |
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|  | **A** | **B** | **C** | **D** |
| **A** |  |  |  |  |
| **B** |  |  |  |  |
| **C** |  |  |  |  |
| **D** |  |  |  |  |

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| --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** |
| **A** |  |  |  |  |
| **B** |  |  |  |  |
| **C** |  |  |  |  |
| **D** |  |  |  |  |

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| --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** |
| **A** |  |  |  |  |
| **B** |  |  |  |  |
| **C** |  |  |  |  |
| **D** |  |  |  |  |

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| --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** |
| **A** |  |  |  |  |
| **B** |  |  |  |  |
| **C** |  |  |  |  |
| **D** |  |  |  |  |

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1. Постройте графы, соответствующие каждой из матриц смежности:

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| --- | --- | --- | --- |
| а) | б) | в) | г) |
|

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  | 0 | 1 | 1 | 0 |
| **B** | 0 |  | 1 | 0 | 1 |
| **C** | 1 | 1 |  | 0 | 1 |
| **D** | 1 | 0 | 0 |  | 0 |
| **Е** | 0 | 1 | 1 | 0 |  |

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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  | 0 | 1 | 1 | 1 |
| **B** | 0 |  | 1 | 0 | 0 |
| **C** | 1 | 1 |  | 0 | 1 |
| **D** | 1 | 0 | 0 |  | 0 |
| **Е** | 1 | 0 | 1 | 0 |  |

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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  | 0 | 1 | 1 | 1 |
| **B** | 0 |  | 1 | 0 | 1 |
| **C** | 1 | 1 |  | 0 | 1 |
| **D** | 1 | 0 | 0 |  | 0 |
| **Е** | 1 | 1 | 1 | 0 |  |

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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  | 0 | 0 | 1 | 0 |
| **B** | 0 |  | 1 | 0 | 1 |
| **C** | 0 | 1 |  | 1 | 1 |
| **D** | 1 | 0 | 1 |  | 0 |
| **Е** | 0 | 1 | 1 | 0 |  |

 |
| а) | б)  |
| в) | г)  |

1. Постройте графы, соответствующие каждой из весовых матриц:

|  |  |  |  |
| --- | --- | --- | --- |
| а) | б) | в) | г) |
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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  | 4 | 3 |  | 7 |
| **B** | 4 |  |  | 2 |  |
| **C** | 3 |  |  | 6 |  |
| **D** |  | 2 | 6 |  | 1 |
| **Е** | 7 |  |  | 1 |  |

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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  | 2 | 5 |  | 6 |
| **B** | 2 |  |  | 3 |  |
| **C** | 5 |  |  |  |  |
| **D** |  | 3 |  |  | 1 |
| **Е** | 6 |  |  | 1 |  |

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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  |  | 2 | 2 | 6 |
| **B** |  |  |  | 2 |  |
| **C** | 2 |  |  | 2 |  |
| **D** | 2 | 2 | 2 |  |  |
| **Е** | 6 |  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  | 5 | 2 |  | 6 |
| **B** | 5 |  |  | 5 |  |
| **C** | 2 |  |  | 2 |  |
| **D** |  | 5 | 2 |  | 3 |
| **Е** | 6 |  |  | 3 |  |

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1. Постройте орграф, соответствующий каждой из весовых матриц.

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| а) | б) | в) | г) |
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|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  |  | 3 | 1 |  |
| **B** | 2 |  | 4 |  | 2 |
| **C** | 3 |  |  |  |  |
| **D** | 1 |  |  |  |  |
| **Е** |  |  | 2 |  |  |

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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  |  | 5 | 1 | 1 |
| **B** |  |  | 6 | 4 |  |
| **C** | 3 | 4 |  |  | 2 |
| **D** |  | 2 |  |  |  |
| **Е** |  |  | 3 |  |  |

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| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  |  | 3 | 1 | 4 |
| **B** |  |  | 4 |  | 2 |
| **C** |  | 4 |  |  | 2 |
| **D** |  |  |  |  |  |
| **Е** | 4 |  | 2 |  |  |

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **Е** |
| **A** |  |  |  | 1 |  |
| **B** |  |  | 4 |  | 1 |
| **C** | 3 | 4 |  | 4 | 2 |
| **D** | 1 | 2 | 4 |  |  |
| **Е** | 1 | 1 | 2 |  |  |

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