Topics for the Final Examination

1. The examination is a cumulative examination. That is, the topics covered before the second examination are included for the second examination. All the topics are listed below.

2. Speed of Algorithms

3. Correctness of Algorithms

4. Order of notation

5. Divide and Conquer technique

6. Sorting

7. Order Statistics

8. Dynamic Programming

9. Elementary Data Structures

10. Dictionary Operations

11. AVL trees, 2,3 trees, 2-4 trees, Red-Black trees (not in depth)

12. 2,3,4-trees

13. Red-Black trees

14. Priority queues

15. Union-Find

16. Topological sorting

17. Minimum spanning trees

18. Strongly connected components

19. Single Source shortest paths

20. All-Pairs shortest paths

21. Maximum Flow

22. Linear Programming (very elementary introduction)

23. NP-completeness

1. Specific sections and subsections are listed below:

2. Section 1

3. Section 2
4. Sub-section 3.1 (o and ω not covered)
5. Sub-sections 4.2, 4.3, 4.5
6. Section 6
7. Sub-section 8.1
8. Sub-section 9.3
9. Sub-section 8.3
10. Sub-sections 15.4, 15.2
11. Section 10
12. Subsections 12.1, 12.2, 12.3
13. 2,3,4 tree version of subsections 18.1, 18.2, 18.3
15. Subsection 6.5 (only Inserts and Extract mins)
16. Section 21 (only n log* n version)
17. Subsections 22.1, 22.3, 22.4, 22.5, 23.1, 23.2
18. Subsection 24.3
19. Subsections 25.1, 25.2
21. Subsections 29.2
22. Subsections 34.1, 34.2, 34.3, 34.5