Mid Exam Outline
(CS-272 Design and Analysis of Algorithms)

➢ These topics are covered from slides and book.
➢ Slides and Book will be the main source for exam preparation.
➢ Topics also available in the book are highlighted with the page number of the book.
➢ There will be question from the book too.

1. Model of Computation (Page 26)
2. 2D Maxima Algorithm
   a. Analysis of 2D Maxima
   b. Runtime Analysis
   c. 2D Maxima: Sweep Line Algorithm
3. Asymptotic Notations (Page 54)

[Divide and Conquer Strategy]

4. Merge Sort Algorithm (Page 34 and 76)
   a. Analysis of Merge Sort
   b. Solving Recurrence Relation
5. Median Selection Problem
   a. Partitioning algorithm
   b. Analysis of Median Selection
6. Binary Heaps (Page 161)
7. Heap Sort Algorithm (Page 170)
   a. Analysis of Heap Sort
8. Quick Sort Algorithm (Page 183)
   a. Analysis of Quick Sort
9. Lower Bounds for Sorting (Page 205)

[Linear Time Sorting Strategy]

10. Counting Sort (Page 208)
11. Bucket Sort (Page 215)
12. Radix Sort (Page 211)

[Dynamic Programming Strategy]

13. Fibonacci Sequence (Page 69)
14. Edit Distance Algorithm