

M.Phil/Pre Ph.D Regular & Supplementary Examinations – OCTOBER, 2023
R210402A

Paper –II: Advanced Data Structures and Algorithms.
COMPUTERS

Time : 3 hrs

Maximum Marks : 100

Answer One Question from Each Unit
All Questions Carry Equal Marks

UNIT – I

1. a) Explain about the asymptotic notations in detail.
b) Algorithm A uses $10n \log n$ operations, while algorithm B uses n^2 operations. Determine the value n_0 , such that A is better than B for $n \geq n_0$.

OR

2. a) Give an adapter class to support stack interface using the function of vector ADT. Explain.
b) What is asymptotic analysis? Explain in detail.

UNIT – II

3. a) What is sorting? Explain about the exchange sorts and selection and tree sorting insertion sort.
b) Discuss about the bucket sort and radix sort in detail.

OR

4. a) What is merge sort? Explain in detail with example.
b) Explain about the medians and order statistics in detail.

UNIT – III

5. a) What is heap? Construct a heap with the following elements 35, 5, 12, 43, 71, 6, 45, 24, 30.
b) What is a queue? Explain about insertion and deletion operations on queue with an example.

OR

6. a) Define binary tree and write recursive algorithm for an order traversal of a binary tree.
b) Explain about the Tree applications, Searching Basic Search Technologies and Tree searching.

UNIT – IV

7. a) Write and explain Dijkstra's Algorithm for single source shortest path.
b) Discuss about the general method of Dynamic programming.

OR

8. a) What is network flow problems? Explain in detail with example.
b) Explain the functional cascading in detail with example.

UNIT – V

9. What is String Algorithm? Explain in detail.

OR

10. Explain about the geometric algorithm in detail.
