



FD-324

M.Sc. 1st Semester
Examination, Dec.-Jan., 2021-22

COMPUTER SCIENCE

Paper - III

Data Structure Through Algorithm Using 'C'

Time : Three Hours] [*Maximum Marks* : 100

Note : Answer any **two** parts from each question. All questions carry equal marks.

Unit-I

1. (a) Explain the complexity of algorithm with respect to time and space.
(b) Explain mathematical notation and all functions.
(a) What do you understand by complexity of an algorithm ? Explain with example.

(2)

Unit-II

2. (a) Explain some string operations.
- (b) Explain linear array and its representation in memory.
- (c) What do you mean by bubble sort ? Explain with the help of example.

Unit-III

3. (a) Differentiate between stacks and queues. Explain with examples.
- (b) Explain linked list and its representation in memory.
- (c) Explain recursion with example of 'Tower of Hanoi'.

Unit-IV

4. (a) Write a program to delete an element from binary tree.
- (b) What is Huffman's algorithm ? Explain heap sort with proper algorithm.
- (c) Explain Graph theory with adjacency matrix, path matrix.

(3)

Unit-V

5. (a) What is Merging ? Explain the merge sort with its algorithm and discuss the complexity for it.
- (b) Explain selection sort with example.
- (c) Write short notes on the following :
- (i) Radix sort
 - (ii) Searching and data modification
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