

Exam. Code : 206701
Subject Code : 5029

M.Sc. Computer Science 1st Semester
ADVANCED DATA STRUCTURES
Paper—MCS-101

Time Allowed—3 Hours] [Maximum Marks—100

Note :—Attempt FIVE questions in all, by selecting at least ONE question from each section. The fifth question can be attempted from any section. All questions carry equal marks.

SECTION—A

1. What do you mean by B-Tree ? Write an algorithm to insert a node in B-Tree. Explain the algorithm with a suitable example.
2. What is BST ? Write an algorithm to delete a node from BST. Explain the algorithm by considering all the possible cases.

SECTION—B

3. What is Binary Heap ? Explain its types with suitable example. Also write an algorithm for any Binary Heap Operation.
4. What do you mean by Priority Queue ? Explain different operations that can be performed on a priority queue.

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(Contd.)

SECTION—C

5. What is Binomial heap ? What are the various operations that can be performed on Binomial heap ? Explain each with a suitable example.
6. (a) Write and explain Robin-Karp String Matching Algorithm.
(b) What do you mean by amortized analysis ? Explain different methods of this analysis.

SECTION—D

7. What is external sorting ? Explain merge sort algorithm with an example.
8. Explain the following :
(a) Indexing files
(b) External hashing.

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