60512

B.C.A. (SM-Four Year Degree Programme) EXAMINATION

(For Batch 2024 & Onwards)

(Second Semester)

DATA STRUCTURE

BCA/SM/2/DSC/106

Time : *Two Hours*   *Maximum Marks* : 35

Note : Attempt *Three* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

1. Attempt all parts :   7×1=7

    (i)   Define time-space tradeoffs.

    (ii)   What is a linked list ?

    (iii) What is the circular queue ?

    (iv) Define the term Hashing.

(v) Write about the divide and conquer strategy.

(vi) Write the conditions for the Max-heap.

(vii) What is an array, and how are they defined ?

Unit I

2. (a) Write the algorithm of Binary Search and explain it with the help of an example. 7

   (b) What is hashing ? Write the techniques of collision resolution in hashing. 7

3. (a) Write the algorithm of insertion and deletion in an array. 7

   (b) Write an algorithm of Bubble sort. 7

Unit II

4. What is a tree ? Write the traversal techniques by taking a suitable example. 14

5. (a) Write a short note on linked lists and write the difference between an array and a linked list. 7

   (b) Write an algorithm for insertion and deletion in the stack. 7