

**Common to B.Sc. Honours Computer Science Major, B.Sc. Honours
Information Technology Major**

SEMESTER-II

COURSE 3: Data Structures using C

MODEL QUESTION PAPER

Time : 3 Hours

Max. Marks:70

SECTION – A

**Answer any FIVE of the following
(Marks: 5 x 4 marks = 20 marks)**

1. Define an Algorithm. Explain its characteristics.
2. Differentiate Linked List and Array.
3. Explain the types of linked lists.
4. What is a stack? Write its applications.
5. Write about Circular Queue.
6. What is searching and sorting.
7. Explain Binary Tree Traversals with examples.
8. Define a Graph. Write the applications of Graph.

SECTION – B

**Answer any FIVE of the following
(Marks: 5 x 10 marks = 50 marks)**

UNIT- I

9. (a) Define Data Structure. Explain the types of data structures in detail.

Or

- (b) Write short notes on

i) Space Complexity ii) Time Complexity iii) Asymptotic Notations

UNIT - II

10. (a) Implement Single Linked List ADT with the following operations:

i) Creating a List ii) Insertion (At first Node, Specified Position, Last node).

Or

- (b) Implement Single Linked List ADT with the following operations:

i) Creating a List ii) Deletion (At first Node, Specified Position, Last node).

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UNIT - III

11. (a) Explain the implementation of Stack ADT using an Array.

Or

(b) Explain the implementation of Queue ADT using an Array.

UNIT - IV

12. (a) Explain Binary Search with example.

Or

(b) Explain Bubble Sort with example.

UNIT - V

13. (a) Define Binary Search Tree. Explain the operations of Binary Search Tree.

Or

(b) What are Graph Traversal techniques? Explain with examples.

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