

## C 4311

B.Sc. (Three Year) DEGREE EXAMINATION, MARCH/APRIL 2017.

End Semester Examination

Fourth Semester

Part II : Computer Science

Paper IV : DATA STRUCTURES

*Time : 3 Hours*

*Max. Marks : 70*

### PART — A

Answer any FIVE questions of the following. **(5 × 4 = 20 Marks)**

1. What is the difference between array and linked list?
2. How stacks are used? Explain about it.
3. What are the different types of trees in data structures?
4. Write about the connected components involved in graphs.
5. What do you mean by insertion sort? How it occurs?
6. What is binary tree and explain its properties, implementations and applications?
7. Write about the dequeue.
8. What is linked list? What are its basic operations involved in it?

### PART — B

Answer ALL the questions. **(5 × 10 = 50 Marks)**

9. (a) Write about Double linked list with its implementation.
- Or
- (b) Explain about the ADT sets and sparse matrices with examples.
10. (a) Write a programme to implement queue operations using arrays.

Or

- (b) How dequeue can you implement? Write with suitable examples.

Turn Over

11. (a) Write about the concept of heap trees along with working.

Or

(b) Explain the ADT operations and linked representation of B-Tree.

12. (a) Explain about depth-first search with an algorithm.

Or

(b) Write about the topological sortings and connectivity in directed graphs.

13. (a) What do you mean by merge sort? How it occurs? Explain with example.

Or

(b) What is binary search? Explain its working and implementation.

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