

C 4502

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

End Semester Examination

Fourth Semester

Part II

DATA STRUCTURES USING JAVA

Time : 3 Hours

Max. Marks : 70

PART — A

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

1. What are data types in ADT?
2. Write a simple algorithm for selection sort.
3. What is double linked list explain?
4. What is linear search explain?
5. Explain queue with an example.
6. What is file? Explain any five methods of file.
7. What is B-Tree?
8. Explain merge sort with example.

PART — B

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

UNIT – I

9. (a) Write a program to insert and delete elements using singly linked list.

Or

- (b) What is data structure? What are the advantages and disadvantages of data structure and storage structure? Explain.

Turn Over

UNIT – II

10. (a) Write notes on the following :

- (i) Recursion
- (ii) Priority queue and its uses.

Or

(b) Define Stack. How it is different from queue, write an algorithm to implement stack using linked list.

UNIT – III

11. (a) Define tree and binary tree. Explain preorder and postorder tree traversal algorithm by taking suitable examples.

Or

(b) What is binary search tree? What are the operations and implementations of BST and its applications?

UNIT – IV

12. (a) What is graph? What are the operations on graphs? And application of graph structures.

Or

(b) What is minimal spanning trees? Explain with neat diagram.

UNIT – V

13. (a) What is bubble sort? Write and explain an algorithm for bubble sort. Sort the following list of numbers using bubble sort.

14, 31, 76, 12, 52, 15, 35, 6, 1, 98, 62.

Or

(b) What is binary search? What are its advantages over linear search? Write and explain an algorithm for searching an element using binary search.
