B.C.A. (Part–II) Semester–III (Old) Examination

DATA STRUCTURE

Paper–3 ST1

Time : Three Hours] [Maximum Marks : 60

Note :— (1) All questions are compulsory.

(2) All questions carry equal marks.

1. (a) What is data structure ? Explain the operations performed on it. 6

(b) Explain the algorithm to delete the element from array. 6

OR

2. (a) Explain the types of data structures with suitable examples. 6

(b) What is array ? Explain the algorithm for traversing an array. 6

3. (a) Write the Recursion algorithm to find the factorial of a given number. 6

(b) What is Recursion ? Explain the types of Recursion with suitable examples. 6

OR

4. (a) Explain the Tower of Hanoi with example. 6

(b) Write the procedure for translation of Prefix to Postfix expression using Recursion. 6

5. (a) What is Queue ? Explain the overflow and underflow condition that occurs in queue with suitable example. 6

(b) What is Linked List ? Explain the types of Linked Lists. 6

OR

6. (a) Write the algorithm to delete an element from queue with suitable example. 6

(b) Explain the algorithm to insert the node as a beginning of Linked List. 6

7. (a) What is Binary Tree ? Explain Linked representation of Binary Tree with diagram. 6

(b) Explain the terms :

(i) Height of Tree

(ii) Degree of node

(iii) Forest 6

OR

8. (a) Explain Binary Search Tree with example. 6

(b) Explain the terms :

(i) Root

(ii) Leaf node

(iii) Sibling nodes 6

9. (a) What is sorting ? Explain merge sort algorithm with suitable example. 6

(b) What is searching ? Explain binary search method with suitable example. 6

OR

10. (a) What is sorting ? Explain Insertion sort algorithm with suitable example. 6

(b) What is searching ? Explain sequential search algorithm with suitable example. 6