

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, July 2019

FDP Under CBCSS

Complementary Course for Statistics and Mathematics

CS 1431.2/CS 1431.3 : DATA STRUCTURES AND ALGORITHMS

(2013 Admn. – 2015 Admn)

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **all** questions. Each question carries 1 marks. :

1. What is an algorithm?
2. Expand LIFO.
3. What is the use of Data Structure?
4. What is the meaning of  $\text{int } *p$ ?
5. Name two dynamic memory allocation functions.
6. What is POP?
7. What is the condition for queue to be empty?
8. What do you mean by singly linked list?

9. What is tree traversal?
10. What's merging?

(10 × 1 = 10 Marks)

PART – B (short answer)

Answer **any eight** questions. Each question carries 2 marks.

11. What is sparse matrix?
12. What is indirect recursion?
13. What do you mean by 'stack overflow'?
14. What is a Queue?
15. What is dynamic data structure?
16. What are the disadvantages of singly linked list?
17. What is pointer?
18. What is doubly linked list?
19. What is a binary tree?
20. Define preorder traversal.
21. What is an AVL tree?
22. Express (A-B)-C in preorder.

(8 × 2 = 16 Marks)

PART – C (short essay)

Answer **any six** questions. Each question carries 4 marks.

23. Discuss the implementation of a two dimensional array.
24. Discuss the applications of stacks.
25. Convert the expression  $(A + B) * C / D + E ^ F / G$  into postfix.
26. Write an algorithm for stack display.
27. What are the characteristic of the circular queue?
28. Discuss the steps involved in adding two polynomials.
29. Briefly explain the breadth-first traversal.
30. Describe the logic behind the binary search.
31. Discuss quick sort algorithm.

(6 × 4 = 24 Marks)

PART – D (Long essay)

Answer **any two** questions. Each question carries 15 marks.

32. Explain the Tower of Hanoi problem.
33. Write an algorithm for inserting an element in queue.
34. Discuss the insertion operation to be performed on a doubly linked list.
35. Explain the selection sort with the elements 16, 15, 2, 13, 6.

(2 × 15 = 30 Marks)