

I Semester B.C.A. Examination, Feb./March 2010

DATA STRUCTURES

Time: 3 Hours

Max. Marks: 80

- Instructions:** 1) Answer *all* questions in Part A, 6 out of 8 questions in Part B, and 3 out of 5 questions in Part C.
2) PART A : Questions from 1 to 8 carry 1 mark and 9 to 14 carry 2 marks each.
3) PART B : *Each* question carries 5 marks.
4) PART C : *Each* question carries 10 marks.

PART – A

- 1) What is space complexity?
- 2) Define stack.
- 3) Define queue.
- 4) Give difference between static and dynamic variable.
- 5) What is linear search?
- 6) Define hashing.
- 7) What is tree?
- 8) How many comparisons required to sort N no's using selection sort ?
- 9) What are the drawbacks of linked list?
- 10) What is binary search tree?
- 11) Mention drawbacks of array.
- 12) Write any 2 applications on stacks.
- 13) Define Interpolation search.
- 14) What is nonlinear data structure ? Give example.



PART – B

- 1) Construct binary search tree for 10,50,20,5,2,1,100.
- 2) Give difference between array and linked list.
- 3) Discuss tree sorting with example.
- 4) Give an example of radix sort.
- 5) Give an example with binary tree to insert a node between root and leaf node.
- 6) Give an example of bubble sort.
- 7) Explain how stack is used as a circular list.
- 8) Explain how queue represented in an array with basic operations.

PART – C

- 1) Write a C program to insert and delete a node from a single linked list.
 - 2) Explain tree traversal technique with example.
 - 3) Write a program for quick sort.
 - 4) Write an algorithm for binary search and explain with an example.
 - 5) Explain algorithmic notations with examples.
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