

MCA DEGREE I SEMESTER EXAMINATION NOVEMBER 2010

CAS 2103 DATA STRUCTURES USING C

Time: 3 Hours

Maximum Marks : 50

PART A

(Answer ALL questions)

(All questions carry EQUAL marks)

(15 x 2 = 30)

- I. (a) What is a stack? Explain PUSH and POP operations.
(b) What is a circular queue?
(c) Compare array with lists
- II. (a) What is a red black tree?
(b) Define binary search tree.
(c) Explain tree traversals.
- III. (a) What is a binomial heap?
(b) What is a Fibonacci heap?
(c) Explain mid square hashing.
- IV. (a) What is recursion? Explain with examples.
(b) How can you remove recursion?
(c) Explain backtracking.
- V. (a) Compare quick sort with merge sort in terms of complexity.
(b) What is count sort?
(c) What is heap sort complexity?

PART B

(All questions carry EQUAL marks)

(5 x 4 = 20)

- VI. A. Implement a deque in C
OR
B. Implement the insertion and deletion in linked list.

- VII. A. Implement binary search tree and its traversals.
OR
B. Explain AVL tree with all its rotations

- VIII. A. Explain has functions.
OR
B. Explain an application of binomial heap.

- IX. A. Implement a non recursive pre order traversal.
OR
B. Write a program in C to find all Fibonacci numbers less than n using recursion.

- X. A. Implement Merge sort with example
OR
B. Explain radix sort with an example.
