

## MCA DEGREE II SEMESTER EXAMINATION MAY 2014

## CAS 2202 DATA STRUCTURES USING 'C' (Regular/Supplementary)

I. (a) Explain the concept of Stack with an example. (b) Explain the implementation of sparse matrix using linked list. (c) Differentiate between Array and Linked List.  II. (a) Differentiate between B- tree and B+ tree (b) What is a Red Black tree? Give an example. (c) What are the advantages of Threaded Binary tree?  III. (a) What are the characteristics of a good hash function? (b) Differentiate between binomial heap and fibonacci heap. (c) Explain how priority queue is implemented using the Heap.  IV. (a) What is Backtracking? What are its applications? (b) Differentiate between recursion and recursive backtracking. (c) Write a recursive 'C' program to find the factorial of any number.  V. (a) What is the difference between external sorting and internal sorting? (b) Explain quick sort with example. (c) What is the use of radix sort?  PART B  (5 x 4 = 20)  VI. Write a 'C' program to simulate the working of a circular queue using linked list implementation.  VII. Explain the construction of binary search tree with an example.  OR  IX. Write a 'C' program to implement insert, delete operations and in order traversal of a threaded binary tree.  X. When does collision occur in hashing? What are the various collision resolution techniques?  OR  XI. Describe the implementation of operations on a binomial heap.  XII. Explain the efficiency of recursion. Write a recursive C program to solve Tower of Hanoi problem.  OR	Time: 3 I	Hours	Maximum Marks: 50
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