

--	--	--	--	--	--	--	--

M.C.A. DEGREE II SEMESTER EXAMINATION MAY 2015

CAS 2202 DATA STRUCTRES USING C
(Supplementary)

Time: 3 Hours

Maximum Marks: 50

PART A
(Answer *ALL* questions)

(15 × 2 = 30)

- I. (a) Write the condition for Queue full or Queue empty.
(b) Give and describe the suitable data structure for expression evaluation.
(c) Describe row major order/column major order representation of an array with example.
- II. (a) Define binary search tree with example.
(b) Give one application of red-black tree.
(c) Describe how to create AVL tree with an example.
- III. (a) Compare binomial heap and fibonacci heap operations with respect to time complexity.
(b) Define hash function. Give example.
(c) Draw a binomial heap B_4 .
- IV. (a) What is backtracking? Describe it with suitable example.
(b) Write a program to find nth fibonacci number using recursion.
(c) Compare recursive method with interative methods.
- V. (a) How to choose the pivot element for quick sort?
(b) Compare radix sort and count sort.
(c) Explain average case complexity of merge sort with one example.

PART B

(5 × 4 = 20)

- VI. Write a program to implement a queue using two stacks.
- OR**
- VII. Write a program to implement a stack using two queues.
- VIII. Write a program to delete a node from binary search tree.
- OR**
- IX. Write a program to insert a node in to red-black tree.
- X. Explain union operation in binomial heap.
- OR**
- XI. Explain 'delete minimum' operation in fibonacci heap.
- XII. Explain n-queens problem.
- OR**
- XIII. Write a recursive program to reverse a list.
- XIV. Explain quick sort with example.
- OR**
- XV. Explain count sort with example.