CHRIST UNIVERSITY,BENGALURU - 560029

End Semester Examination March - 2015

Bachelor of Computer Applications II SEMESTER

Code: BCA235 **Max.Marks: 100**

Subject: DATA STRUCTURES **Duration: 3Hrs**

SECTION A

Answer ALL Questions **10X2=20**

1 List out the areas in which data structures are applied extensively.

2 Differentiate iterative and recursive functions.

3 What is the complexity of binary search algorithm?

4 Why do we convert the infix expression into postfix expression?

5 Mention few applications of queue.

6 Define HEAD pointer and NULL pointer.

7 Draw a doubly linked and doubly linked circular list?

8 What is a binary tree?

9 What are the properties of binary search tree?

10 What is the advantage of quick sort?

SECTION B

Answer Any FIVE Questions **5X6=30**

11 Explain time and space complexity with one example each.

12 Create a function for matrix addition using dynamic memory allocation.

13 Explain four primitive operations performed on a string with examples.

14 Assuming S as an array representing the stack, Top is the pointer to top of the stack and N is the maximum capacity of the stack, write an algorithm for popping an element in to the stack.

15 Draw the sequence of steps to insert an element into an empty and nonempty list.

16 Write an algorithm to find the location of an ITEM in a Binary Search Tree.

17 What are the three cases that arise during the left to right scan in quick sort?

SECTION C

Answer Any FIVE Questions **5X10=50**

18 Discuss the memory representation of simple array, structure and union with examples.

19 Discuss in detail the algorithm to search an element from an array of integers using recursive binary search with an example.

20 Evaluate the given expression using the stack. Explain the operations in each step.

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21 Design a representation of having multiple queues in an array. Illustrate the memory allocation in detail.

22 Write a program to traverse the doubly linked list from left to right. Print neatly the values of the list.

23 Write a function to add an element from a binary search tree.

24 Sort the following sequence of keys using merge sort. 25, 5, 77, 1, 61, 11, 59, 15, 48, 19