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**NK-1443** 

Second Year B. C. A. (Sem. - III) Examination October / November - 2011 303 : Advance 'C' And Data Structure

Time : 3 Hours]

[Total Marks . 76

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## Instruction :

| નીચે દક્ષોવેલ 🕳 નિશાનીવાળી વિગતો ઉત્તરવહી પર અવરય લખવી.     | Seat No.:              |
|---|------------------------|
| Fillup strictly the details of - signs on your answer book. |                        |
| Name of the Examination :                                   |                        |
| Second Year B. C. A. (Sem III)                              |                        |
| Name of the Subject :                                       |                        |
| * 303 : Advance 'C' And Data Structure                      |                        |
| Subject Code No. : 1 4 4 3 Section No (1, 2,)               | il Student's Signature |

1 Answer the following questions : tany ten

- (i) What are the applications of Stack?
- (ii) What is the condition for Overflow and Underflow in Double ended queue ?
- (iii) What is Recursion ? Which condition is necessary in recursion ?
- (iv) Explain the difference between Binary and Linear search.
- (v) Give the difference between UDF and library function.
- (vi) What is the difference between malloc() and calloc()?
- (vii) Explain self referencial structure with proper example.
- (viii) What is the condition for Overflow in Circular queue ?
- (ix) What do you mean by call by value ? Can we pass array through this method ? If Yes, How ?
- (x) List out the areas in which data structures are applied frequently.
- (xi) What are the applications of Stack ?
- (a) What are the various applications of Stack, explain in 7 brief. Write an algorithm to convert a given Infix expression into Prefix expression.
  - What do you mean by Queue ? List out the different 8 types of queues. Explain in detail priority queue its operations and applications giving suitable example.

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(b)

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- (a) Write a program using pointer to read data in an
- array of integers and print its elements in reverse order. (b) What do you mean by Searching technique ? Which 8
  - (b) What do you mean by Searching technique ? Which searching technique is better as compare to other ? Explain Binary search with suitable example.
- 3 (a) Write a program to perform push() and pop () for stack 8 implemented through singly linked list.
  - (b) Demonstrate quick Sort on the following set of numbers.
    91, 16, 53, 31, 98, 12, 79, 82, 63, 77
    Take the last number as pivot. Show the order the number changes during each step of Quick Sort.

## OR

- 3 (a) Explain two way merge Sort with example.
  - (b) Write an algorithm to traverse a binary tree in in-order and post-order non recursively.
  - (a) What do you mean by Circular Vinked List ? What are 8 the advantages of it ? Write an gorithm to insert and delete a node from the Circular Linked List.
    - (b) Explain Dynamic Memory Allocation and Static Memory Allocation with example.

**OR** 

- (a) Explain weighted balanced tree and heighted Balance 8 tree.
  - (b) Represent following expression in a form of tree and draw a tree for following traversal sequence : Inorder, Pre-order and Postorder.
    A + B \* C + (D/E) \* (C D \* (A+D)
- 5 Attempt any three
  - (i) Heap Sort
  - (ii) 2-3 tree
  - (iii) Binary Search
  - (iv) Primitive data structure

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