* K A - 3 7 9 0 *

KA-3790

Second Year B. C. A. (Sem. III) (CBCS) Examination

September / October – 2012

Paper - 304 : Data Structure

Time : **3** Hours] [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ S. Y. B. C. A. (CBCS) (SEM. 3)

Name of the Subject :

☛ 304 : DATA STRUCTUR

☛ Subject Code No. : 3 7 9 0 ☛ Section No. (1, 2,.....) : Nil

Seat No. :

Student's Signature

(2) Marks are indicated to the right side of question.

1 Answer following : (any five) **10**

(i) What is meaning of int **a ?

(ii) What is use of typedef ?

(iii) What will be the position of front and rear if circular queue is full ?

(iv) When 'stack overflow' occur ?

(v) How a new node is created from structure using a structure pointer for a singly link list ?

(vi) What is difference between root node and leaf node ?

2 (a) What is tree ? What is difference between complete binary tree and balanced binary tree ? Discuss various terminologies related to tree. **7**

OR

(a) Explain Traversal Techniques for Traversing binary Tree. Discuss difference between them. **7**

(b) What is difference between sequential search and binary search ? Explain their performance. **5**

OR

(b) Name various sorting methods. Which sorting technique is faster ? **5**

(c) Write prefix and postfix expression for : $(a * b)^2 - (c/d-e)$. **3**

3 (a) What is stack ? Explain different stack operations. **7**

OR

(a) Explain the concept of queue. Compare stack and queue. **7**

(b) Explain circular queue operations. **5**

OR

(b) Discuss double ended queue. Explain its operations. **5**

(c) Name various primitive and non-primitive data structures. **3**

4 (a) Describe concept of dynamic memory allocation. How a link-list node is created ? **7**

OR

(a) Explain singly link-list. How to create, insert and delete node from singly link-list ? Explain their algorithm. **7**

(b) How to display node values in reverse order for doubly link-list ? Explain their algorithm. **5**

OR

(b) What is recursion ? Explain algorithm to display factorial for given number using recursion. **5**

(c) What is difference between pointer to array and array of pointers ? **3**

5 Answer following : (any three) **15**

(a) Algorithm to implement stack using doubly link list.

(b) Difference between quick sort and bubble sort.

(c) Compare array and link-list.

(d) Explain weight balanced tree and height balanced tree.

(e) Explain application of stack and queue.
