



K-3733-RR
Second Year B. C. A. (Sem. III) Examination
October/November – 2012
303 - Advance 'C' & Data Structure

Time : 3 Hours]

[Total Marks : 70

Instruction :

<p>नीचे दर्शाविए निशानीवाणी विगतो उत्तरवही पर अवश्य लખवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : SECOND YEAR B. C. A. (SEM. 3)</p> <p>Name of the Subject : 303 - ADVANCE 'C' & DATA STRUCTURE</p> <p>Subject Code No. : 3 7 3 3 Section No. (1, 2,.....): NIL</p>	<p>Seat No. : <input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/></p> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; text-align: center; width: 100%;">Student's Signature</div>
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- 1 Answer the following questions : (any ten) 10
- (i) Explain the term primitive data structure.
 - (ii) Which condition is necessary for overflow in circular queue ?
 - (iii) Explain the concept call by reference by giving example.
 - (iv) What is self referential structure ? Explain with example.
 - (v) What are the advantages of Stack and Queue as compared to a Linked list ?
 - (vi) What is critical node in height balanced tree ?
 - (vii) Define leaf node and sibling with suitable example.
 - (viii) Why circular linked list is more efficient than singly linked list ?
 - (ix) Explain the term thread.
 - (x) Give the difference between UDF and library function.
 - (xi) Explain the row major representation of 2-D array with example.
- 2 (a) Explain recursion. How stack is used in recursive procedure ? To generate Fibonacci series which procedure is best whether recursive or non recursive ? Justify your answer. 8
- (b) List out the various application of stack. Write an algorithm to convert an infix expression into prefix expression. 7

OR

- 2 (a) What do you mean by stack ? Write an algorithm to implement PEEP and POP operations. 8
- (b) Write a program that will perform different operations on array using call by reference. 7
- (i) Insert
- (ii) Update
- (iii) Delete
- (iv) Display

- 3 (a) Compare circular queue with simple queue. Write an algorithm for PUSH and POP operations of circular queue. 8
- (b) Write a program to perform push () and pop () operations for dynamic queue. 7

OR

- 3 (a) What is Deque ? List out the types of Deque. Write an algorithm to perform insertion operation in Input Restricted Deque. 8
- (b) Write a menu driven program to create linked list of student rollno and name, the program should perform the following tasks : 7
- (i) Adding a new student
- (ii) Deleting specific student
- (iii) Display student list

- 4 (a) Differentiate between internal sorting and external sorting. Write a program to sort a following array using Insertion Sort. 8
- 34, 41, 22, 46, 54, 29, 49, 36, 56, 52
- (b) Explain complete binary tree. Write an algorithm to insert a node in binary tree. 7

OR

- 4 (a) Compare Singly Linked List with Doubly Linked List. Write an algorithm to create Doubly Linked List. 8
- (b) What is tree traversal ? What are the different methods of tree traversal ? Write an algorithm for PREORDER and POSTORDER traversal. 7

- 5** Attempt any three : **15**
- (i) Divide and conquer
 - (ii) Height balanced tree
 - (iii) AVL tree
 - (iv) Differentiate Static and Dynamic memory allocation
 - (v) Convert to reverse polish notation
 - (a) $A/(B-C+D) * E+F^G$
 - (b) $a * (b+(c-a)/d)-c*d$
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