

SB-1443

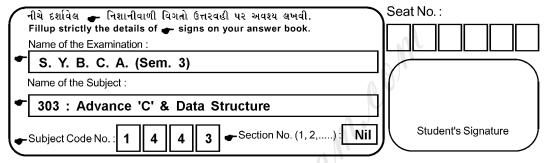
Second Year B. C. A. (Sem. III) Examination March/April - 2011

303 : Advance 'C' & Data Structure

Time: Hours] [Total Marks: 70

Instructions:

(1)



- (2) All questions are compulsory.
- (3) Figures to the right indicate full marks.
- (4) Mention your option clearly.
- 1 Answer in short : (any ten)

10

- (i) List out the limitations of singly linked list.
- (ii) What is simulation?
- (iii) List out computer application of stack.
- (iv) List out disadvantages of link list.
- (v) Define data structure.
- (vi) Find the address of 6th element of an array A [10]. A is an array of floating point numbers and base address is 700.
- (vii) Define the following terms:
 - (a) Path
 - (b) Forest
- (viii) Define terminal & non-terminal node with example.
- (ix) What is critical node in a height balanced tree?
- (x) Give linked list representation of the polynomial $4X^3+2X^2+2X+4Y^2+Y^2$

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(xi) Give the output of following:
          main()
               int b[] = \{10,20,30,40,50\};
               int i, * k;
               k=b;
               for (i=0; i \le 4; i++)
               printf ("%d", *k);
               k++
2
                                                                        7
          Write a recursive function that generate first
     (a)
          N fibonacci number S. Also explain what is recursion.
          Explain D-queue with example. Write an algorithm
                                                                        8
     (b)
          to insert and delete in input restricted D-queue.
                                  OR
     (b)
          Convert into Postfix.
                                                                        8
               A+(B*C-(D/E)*G)*H
               (A-B)*X+Y/(F-C*E)+D
          Explain Lifo structure in detail. Write an algorithm
3
                                                                        7
          for all its operations.
     (b)
          Write an algorithm to sort element of given array
                                                                        8
          using quick sort.
                                  OR
     (b)
          Write a program to convert infix expression to prefix
                                                                        8
          expression.
          Define AVL tree. Explain possible cases during the
                                                                        7
4
          insertion of new node into it.
     (b)
          Explain 2-3 tree with example. Also explain how to
                                                                        8
          search an element from 2-3 tree with proper data tracing.
                                  OR
4
          Answer the following:
                                                                        8
     (a)
               Draw tree for following traversal sequence.
               Inorder: EACKFHDBG
               Preorder: FAEKCDHGB
               Give expression tree for following:
          (ii)
               (a+b) * (c-d)/e
5
     Write short notes: (any two)
                                                                      15
     (i)
          Pointers
     (ii) Heap sort
     (iii) Tower of Henoi
     (iv) Priority Queue.
                                   2
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                                                                [ 2400 ]
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