



G-3733

**B. C. A. (Sem. III) (CBCS) Examination**  
**November / December – 2014**  
**Data Structures**

Time : Hours]

[Total Marks : 70

Instructions :

(1)

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| नीचे दशांशवले निशानीवाणी विगतो उत्तरवडी पर अवश्य द्रजवी.<br>Fillup strictly the details of signs on your answer book.                        | Seat No. :   |
| Name of the Examination :  | <input type="text"/>                                     |
| <input type="text" value="B. C. A. (Sem. 3) (CBCS)"/>  | <input type="text"/>                                     |
| Name of the Subject :  | <input type="text"/>                                     |
| <input type="text" value="Data Structures"/>   | <input type="text"/>                                     |
| Subject Code No. <input type="text" value="3"/> <input type="text" value="7"/> <input type="text" value="3"/> <input type="text" value="3"/> | Section No. (1, 2, ...) <input type="text" value="NIL"/> |
| Student's Signature  |  |

- (2) Write to the point  
(3) Provide examples and diagrams wherever appropriate / necessary  
(4) Figures to the right indicate full marks to the question.

Q 1 Answer Following: (Any Seven) (14)

- (a) What do you mean by forest? Explain with an example.  
(b) What do you mean by NULL in link list? Explain with an example.  
(c) What is the condition of overflow in simple queue? How circular queue is better.  
(d) What is Recursion?  
(e) What do you mean by non-linear data structure? List out the example of it.  
(f) Explain use of 'typedef' with an example.  
(g) Explain array of pointer.  
(h) List out an application of stack.

Q 2(A) What is Stack? List out operation of Stack? Write down an algorithm of infix to postfix. (07)

OR

Q 2(A) What is tree? What is difference between binary tree and 2-3 tree? Discuss various terminologies related to tree. (07)

Q 2(B) What is linear programming? Discuss difference between FIFO and LIFO programming. Write down algorithm how to delete an element in circular queue. (07)

Q 3(A) What is searching? Discuss difference between binary search and liner search. Write down an algorithm of binary search. (07)

OR

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[Contd...

- Q 3(A) What is sorting? Write down an algorithm of Merge sort. (07)
- Q 3(B) What is tree? Explain how to insert and delete node in binary tree. (07)
- Q 4(A) Describe the concept of Circular singly link list. Write an algorithm to perform insert and deletion from particular position in Circular singly link list. (07)
- OR
- Q 4(A) What is double ended queue? Explain input restricted and output restricted Dqueue. Write down an algorithm of input restricted Dqueue. (07)
- Q 4(B) Explain Insertion Sort with an algorithm. (07)
- Q 5(A) Construct tree of following expression and write down preoder, inorder and postorder. (05)  
 $((A + B) / D) ^ ( ( E - F ) * G )$
- Q 5(B) Write down short note of Tower of Hanoi. (05)
- Q 5(C) Explain simulation. (04)
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