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A-3733

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

March / April – 2015

Data Structures

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 :

☛ B.C.A. (SEM. III) (CBCS)

Name of the Subject :

☛ DATA STRUCTURES

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

Seat No. :

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.

1 Answer the following Questions: (Any Seven) **14**

(a) Explain the application of link list.

(b) Explain self referential structure with an example.

(c) Evaluate postfix expression:- 5, 6, 2, +, *, 12, 4, /, -.

(d) Explain sibling and forest in tree.

(e) Explain Priority queue.

(f) What do you mean by terminal node? Explain with an example.

(g) Discuss the real world example of stack.

(h) Difference between int *p and int**p.

2 (A) What do you mean by stack? List out the application of stack and write down the algorithm of infix to postfix. **7**

OR

(A) Comparison between dynamic stack and static stack. Write down the program of dynamic stack. **7**

(B) Comparison between dynamic memory allocation and static memory allocation. Which is the better? "Justify your answer with an example". **7**

3 (A) Comparison between simple queue and circular queue. Write down the algorithm of insert and delete an element in circular queue. **7**

OR

(A) What do you mean by doubly link list? Write down the algorithm of (1) Insert an element in beginning (2) Insert an element at middle position. **7**

(B) What do you mean by Sorting? Discuss the comparison of sorting technique and according to you which sorting technique is more efficient. **7**

4 (A) What do you mean by tree? Discuss various terminologies of trees with an example. **7**

(B) Construct the tree and write down the preorder, postorder and inorder of following expression :- [a+(b–c)] * [(d–e)/(f+g–h)]. **7**

OR

(B) Explain sequential representation or linked storage representation of binary tree. **7**

5 Answer the following Questions:

(1) Discuss tower of Hanoi. **5**

(2) What do you mean by searching? Differentiate between binary search and linear search. Write down an algorithm of binary search. **6**

(3) Comparison between LIFO and FIFO. **3**
