



SN – 474

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III Semester B.C.A. Degree Examination, November/December 2013  
(Y2K8 Scheme) (F + R)

BCA – 305 : DATA STRUCTURES USING C

Time : 3 Hours

Max. Marks : 60/70

- Instructions:** 1) Answer Sections **A, B, C**.  
2) Candidates who have taken admission from **2011**, must attend Section – **D** also.  
3) **70** marks for fresh students (from **2012-13**) **60** marks for **repeater** students prior to **2012-13**.

SECTION – A

Answer **any ten** questions.

(1×10=10)

1. What is primitive data structure ?
2. Write the difference between & and \* operators.
3. What is dynamic memory allocation ?
4. What is recursion ?
5. Compare linear and binary search methods.
6. Define stack overflow.
7. Write the difference between stack and queue.
8. What is a priority queue ?
9. Define linked list.
10. What is meant by traversal of a linked list ?
11. What is depth of a node ?
12. What is degree of a node ?

P.T.O.



## SECTION – B

Answer **any five** questions.

(3×5=15)

13. Explain the time complexity of algorithms.
14. Write a recursive function to find the factorial of a number.
15. Write the algorithm for binary search method.
16. Explain doubly linked list.
17. Translate the following expression into postfix.  $A + B * (C - D) / E + F$ .
18. Explain dequeue.
19. Explain the creation of a binary tree.

## SECTION – C

Answer **any five** questions.

(5×7=35)

20. Explain malloc() and realloc() functions with an example. 7
21. Explain the towers of Hanoi problem for 3 disks. 7
22. Write the algorithm to implement merge sort. 7
23. Explain the bubble sort method, with an example. 7
24. Write a program to implement push and pop operations on stack and to display the elements. 7
25. Write an algorithm to insert and delete an element in a circular queue. 7
26. a) Write the algorithm to insert an element at the specified position in a linked list. 4  
b) Write the algorithm to delete an element from the beginning of a linked list. 3
27. Explain the traversals of a binary tree. 7

## SECTION – D

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28. Write a program to insert, delete and display the elements from a simple queue.
  29. Write a program to create a linked list and insert an element at the beginning of the list and delete an element from the end of the list.
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