**TB153120A** **Reg. No……**

**Name……**

**B. Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2016**

**SEMESTER III - CORE COURSE - COMPUTER APPLICATIONS**

**CAC3B05TB - DATA STRUCTURES**

**Time: Three Hours** **Maximum Marks: 80**

## PART A

**I. Answer all questions. Each question carries 1 mark.**

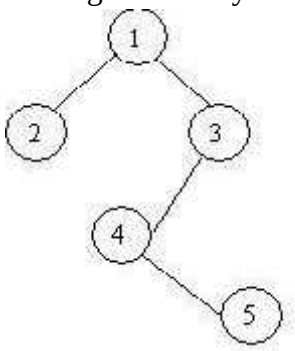
1. What are the limitations of Array?
2. Explain push and pop operation in stack.
3. What is a linked list?
4. What is meant by Garbage Collection?
5. What is binary tree?
6. What is meant by time complexity?

**(6x1=6)**

## PART B

**II. Answer any seven questions in one or two sentences. Each question carries 2 marks**.

7. Explain the memory representation of multidimensional arrays.
8. Explain any 2 primitive data structures.
9. Give prefix form for A/B^C+D
10. Explain the applications of stack.
11. Explain the concept of dynamic memory allocation.
12. Write the advantages and disadvantages of doubly linked list
13. Explain recursion with Example.
14. In the given binary tree, using array you can store the node 4 at which location?




15. What is dynamic programming?
16. Explain greedy Method

**(7x2=14)**

## PART C

**III. Answer any five questions in 50 words each. Each question carries 6 marks**

17. Explain the algorithm for binary search.
18. Explain the algorithm to evaluate the postfix expression with an example.
19. Discuss the operations performed on circular queue with example.

20. Explain the different types of linked list.
21. Write an algorithm to delete a node at the end of the linked list.
22. Write the steps to create a binary search tree. Create the following list into a BST. {50,15,62,5,20,58,91,3,8,37,60}
23. What is Backtracking? Explain 8 Queens Problem
24. Explain the various steps in the design and analysis of algorithm.

**(5x6=30)**

## PART D

**IV. Answer any two questions in 100 words. Each question carries 15 marks**

25. Explain the procedure of bubble sort and trace bubble sort on the list L={29,91,33,68,45,56,90,17,65,82,19}
26. Explain the algorithm to convert infix expression to postfix with an example.
27. Explain stack and its operations. Write a program to implement stack using linked list.
28. Define binary search tree. Write a program that implements the various tree traversing techniques with example.

**(2x15=30)**