Hall Ticket Number:

Code No. : 13110 FDS

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (CBCS) III-Semester Main Examinations, December-2017

Fundamentals of Data Structures

Time: 3 hours Max. Marks: 70

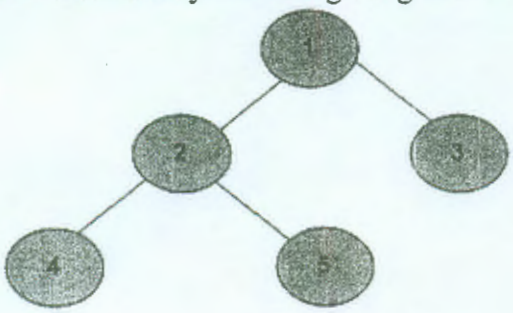
*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

1. Convert the following infix expression to postfix form A+B*C/D*(F-E).
2. List different Linear Data Structures.
3. Identify the position of Rear and Front in a Queue.
   eg: -- -- -- -- 6 7
4. List different applications of Queues.
5. Analyze the output for the given code(Single Linked List).

```
Display()
{ node *p;
  p=first;
  while(p!=NULL)
   {
     printf(p->data);
   }}
```

6. Distinguish between arrays and Single linked list.
7. Illustrate the significance of Double Linked List.
8. List the different operations performed on a doubly linked list.
9. Construct In- order traversal by traversing the given tree.



10. Justify whether AVL Tree is a binarySearch tree or not?

Part-B (5 × 10 = 50 Marks)

11. a) Write a function to pop() elements from Stack. [4]
    b) Convert the following infix expression to postfix expression a*b+c. And explain the procedure to convert infix to postfix expression. [6]
12. a) Write a function to insert() and delete() elements in a Queue. [5]
    b) Compare difference between Queues and Circular Queues along with an example. [5]

Contd... 2

13. a) Write a function to create(), insertlast(), display() elements by implementing Single linked list. [6]

    b) Apply Stacks using linked list to delete elements explain with an example. [4]

14. a) Write the function to create(), insertfirst() elements by implementing Double linked list. [6]

    b) Explain the significance of Double linked list along with an example. [4]

15. a) Construct a Binary Search Tree for the following sequence of numbers. 45, 32, 90, 34, 68, 72, 15, 24, 30, 66. [7]

    b) Illustrate the significance of different Tree Traversal Techniques and explain Traversal techniques along with an example [3]

16. a) Explain the procedure for evaluation of postfix expression along with an example. [6]

    b) Explain different operations performed on Circular Queues. [4]

17. Answer any ***two*** of the following:

    a) Compare with an example why Queue overflow is not there in Queues using single linked list. [5]

    b) Write a function to insertlast() and display() to display elements using Double linked list. [5]

    c) Illustrate the significance of AVL Trees. [5]