

Hall Ticket Number:

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Code No. : 13615 O2

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E (IT: CBCS) III-Semester Backlog (Old) Examinations, December 2018

Data Structures

Time: 3 hours

Max. Marks: 70

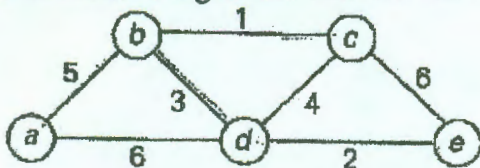
Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2=20 Marks)

1. Write abstract Data Type for polynomial.
2. Write the applications of stack.
3. Write and explain the structure for singly linked list node.
4. Distinguish Array and Linked List.
5. What is a minimum cost spanning tree? Give an example.
6. Construct binary tree for the following expression $(a+b)/(c-d)+e+f*g/h$.
7. What are various rotations performed during insertion or deletion into a splay tree.
8. Define B-Tree.
9. Define Hashing and Collision.
10. Discuss about the worst case time complexity of Quick sort?

Part-B (5 × 10 = 50 Marks)

11. a) Explain different operations of Queue. [4]
b) Explain the evaluation of postfix expression. [6]
12. a) Discuss how to insert an element into doubly linked list. [5]
b) Explain applications of Linked List. [5]
13. a) Illustrate various graph Traversal methods with suitable examples. [5]
b) Explain minimum cost spanning tree. [5]
14. a) Explain how insertion is performed in an AVL Tree. [4]
b) Show how the following elements are inserted into a B-Tree of order 5 [6]
12, 34, 56, 69, 5, 3, 17, 25, 32, 47, 63, 50, 29, 19.
15. a) What is hashing? Explain collision resolution techniques. [5]
b) Explain Quick sort along with an example. [5]
16. a) Demonstrate the implementation of stack using array and write the code. [6]
b) Explain difference between Single Linked list and double linked list. [4]
17. Answer any two of the following:
 - a) Write the steps and explain how to convert the following Infix expression into Postfix form $A+(B+C*D)/(E-F)$. [5]
 - b) Explain Kruskal's algorithm with the following example. [5]



- c) Construct a max heap for the following list of elements 10,2,7,6,5,9,12,35,22. [5]