

Hall Ticket Number:

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Code No. : 13613 O

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD
B.E (IT) II Year I-Semester (Old) Examinations, June-2019

Data Structures

Time: 3 hours

Max. Marks: 70

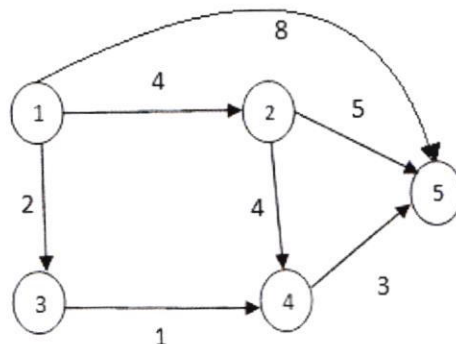
Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B**

Part-A (10 × 2=20 Marks)

1. Write Abstract Data Type for String.
2. Write the applications of Queue.
3. Write the structure for representing polynomial using singly linked list
4. List applications of Linked List.
5. Define heap. What are Max and Min heap?
6. List any two applications of DFS.
7. What is an m-way search tree?
8. What are various rotations performed in AVL Tree
9. List different sorting techniques.
10. Discuss the use of Hash function.

Part-B (5 × 10 = 50 Marks)

11. a) Demonstrate the evaluation of the following Postfix expression using stack $345^*+62/-$ and write the function for evaluation. [6]
b) Explain difference between Queues and Circular Queues. [4]
12. a) Differentiate between arrays and Linked List. [4]
b) Write a function to insert elements into single linked list. [6]
13. a) Discuss Graph Search Methods with examples [4]
b) Find the single source shortest paths to all the vertices from vertex 1 of the following graph using Dijkstra's shortest path algorithm [6]



14. a) Write about Red-Black trees. [5]
b) Show insertion of the following elements into AVL tree 15,6,25,11,10,13,3,29,37. [5]
15. a) Explain merge sort technique with example. [5]
b) Explain different hashing Techniques. [5]

16. a) Write about Infix and Postfix expressions with example. [5]
b) Differentiate between single linked list and double linked list. [5]
17. Answer any *two* of the following:
- a) Write a function to insert an element into a Binary Search Tree. [5]
b) Write in brief about B-trees. [5]
c) Explain insertion sort with example. [5]
