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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

MCA I Year II Semester Regular Examinations May 2019
DATA STRUCTURES

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a Write a routine for sorting elements using quick sort method. Explain the working of the routing with an example. 6M
b Write and explain Radix sort algorithm with an example. 6M

OR

- 2 a What is searching? Explain Linear search algorithm with example and also find its time complexity. 6M
b Define searching. Differentiate the time complexities of Linear and Binary search with examples. 6M

UNIT-II

- 3 a What is sparse matrix? Write an algorithm for implement sparse matrix. 6M
b Write an algorithm for insertion operation in circularly doubly linked list. 6M

OR

- 4 a Explain the circular linked list in detail. 6M
b What is draw backs of single linked list? Explain how to implement insert and transverse operations in circular linked list. 6M

UNIT-III

- 5 a What is stack? Explain any two applications of stack with examples. 6M
b Give brief description about the priority queues. 6M

OR

- 6 a What are the applications of queue? 5M
b How to store stack using linked list? Explain with example. 7M

UNIT-IV

- 7 a Explain how to delete an element from the binary search tree. 7M
b Write recursive algorithm for pre order traversal. 5M

OR

- 8 a Discuss B-Trees. 6M
b What is binary search tree? How to implement recursive traversal techniques on binary search tree. Discuss with an example. 6M

UNIT-V

- 9 a Explain DFS algorithm with example. 6M
b Define graph. Explain various operations on graphs. 6M

OR

- 10 a Explain any algorithm for all pairs shortest path problem. 6M
b Discuss how to represent graph storage using Adjacency matrix. 6M

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