

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

B.Tech I Year II Semester Supplementary Examinations May/June-2024

DATA STRUCTURES THROUGH C

(Common to CSE & CSIT)

Time: 3 Hours

Max. Marks: 60

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

UNIT-I

- 1 a Discuss the merging operation on One-Dimensional array with algorithms. CO1 L2 6M
b Discuss the deletion operation on One-Dimensional array with algorithms. CO1 L2 6M

OR

- 2 a Write a detailed notes on Static representation of Single Linked List CO1 L1 6M
b Write a detailed notes on Dynamic representation of Single Linked List CO1 L1 6M

UNIT-II

- 3 Explain the Tower of Hanoi problem containing 3 discs and write the algorithm to solve it. CO2 L3 12M

OR

- 4 How to convert an Infix expression into Postfix expression, explain through an example. Convert the following Infix expression to Postfix: $(A+B)^C - (D * E) / F$. Write the algorithm for it CO2 L3 12M

UNIT-III

- 5 a Define the following terms with representations
i) Binary Tree ii) Binary Search Tree CO3 L1 6M
b How to represent a binary tree using Linked List? explain it. CO3 L2 6M

OR

- 6 Write about Traversal Operations on a Binary Tree with algorithms. CO3 L3 12M

UNIT-IV

- 7 Write and explain the algorithm for Straight Selection Sort. Explain with an example? CO4 L3 12M

OR

- 8 What is the logic behind Heap sort and sort the following elements
12 98 67 44 88 70 CO4 L2 12M

UNIT-V

- 9 a What is Hash table and explain any two Hash functions with an example? CO5 L2 6M
b What is collision resolution? Discuss the different techniques of it. CO5 L2 6M

OR

- 10 a Write and explain the algorithm for Linear search using linked list. CO5 L4 6M
b How Fibonacci search is better than binary search. Write the algorithm for Fibonacci search? CO5 L4 6M

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