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Reg. No: ☐☐☐☐☐☐☐☐☐☐

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. I Year II Semester Supplementary Examinations March-2021
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. Write a detailed notes on **12M**
   (i) Static representation of Single Linked List
   (ii) Dynamic representation of Single Linked List

OR

2. Discuss the following operations on One-Dimensional array with algorithms. **12M**
   (i). Searching (ii). Sorting (iii). Traversing.

UNIT-II

3. a What is a stack? Explain the operation on stack. **6M**
   b Write algorithms for INSERTION and DELETION operations on Queues. **6M**

OR

4. Write an algorithm to solve Towers of Hanoi problem .Explain the procedure with an example. **12M**

UNIT-III

5. Construct a Max heap tree for the following elements and sort them in ascending order 76 69 5947 8599 98. **12M**

OR

6. Explain the following graph traversal algorithms
   a Depth-First- Search **6M**
   b Breadth-First-Search **6M**

UNIT-IV

7. Write a detailed notes on sorting by Merging. **12M**

OR

8. Apply Divide-and-Conquer method to implement Quick sort and sort the following elements write the algorithm for it 22 71 49 53 7 6 **12M**

UNIT-V

9. a Write an algorithm for Binary search. Explain with an example **6M**
   b Write an algorithm for Fibonacci search. Explain with an example **6M**

OR

10. a Write and explain the algorithm for Linear search using linked list. **6M**
    b What is Hash table and explain any two Hash functions with examples? **6M**

*** END ***