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## C.U.SHAH UNIVERSITY

 Summer Examination-2016
## Subject Name : Data and File Structure Subject Code : 4TE03DFS1

Branch : B.Tech (CE)

Semester : 3 Date : 30/04/2016
Time : 2:30 To 5:30 Marks : 70
Instructions:
(1) Use of Programmable calculator \& any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

## Q-1 <br> Attempt the following questions:

a) What do you mean by successor?
b) What is space complexity?
c) What do you mean by non linear data structure?
d) What is worst case analysis?
e) What is Hashing?
f) What is the use of Augmented Data Structure?
g) What is polish expression?
h) What do you mean by a field?
i) What is Graph? Enlist types of graph.
j) Complexity of sequential search is less than quick sort. True or false? Justify your answer.
k) Give the name of a person who had written Scan algorithm.
l) What is recursion?
m) What do you mean by Convex Hull?
n) Define : Symbol Table.

Attempt any four questions from Q-2 to Q-8
Q-2 Attempt all questions
a) Write an algorithm for Selection Sort.
b) Write a C program to calculate sum of all the digits of an integer number using
recursion.
c) Explain any two linear data structures.

## Q-3 Attempt all questions

a) Write an algorithm for Linear Searching.
b) Convert the following expression into Prefix and Postfix notations.

c) What is an Array? Explain the applications of an Array.
Q-4 Attempt all questions(14)
a) Write algorithms to insert and delete elements from a stack.
b) Write a C Program to calculate average of all the elements of a $3 \times 3$ matrix.
a) Write a note on : Binary Tree.
b) Write algorithms to insert an element at beginning and delete an element from the 7 middle of a doubly linked list.

## Q-6 Attempt all questions

(14)a) Construct B -tree of order 5 for following data. ..... 7
$1,8,6,2,11,5,10,13,12,20,16,24,3,4,18,19,14,25$
b) Write a note on : Dijkstra's Shortest Path Algorithm. ..... 7
Q-7 Attempt all questions ..... (14)
a) Explain Prim's Algorithm with suitable example. ..... 7
b) Explain in short B Tree and B+ Tree. ..... 7
Q-8 Attempt all questions ..... (14)
a) Write a note on : Indexed File Organization. ..... 7
b) Explain Jarvis March algorithm. ..... 7


