## **C.U.SHAH UNIVERSITY Summer Examination-2016**

	Subject I Subject (	Name : Code :	Data and File Structure 4TE03DFS1	Branch : B.Tech (CE)	
	Semester	r:3	Date : 30/04/2016	Time: 2:30 To 5:30	Marks: 70
	Instructio (1) U (2) I (3) I (4) A	ons: Use of Pr Instructio Draw nea Assume	rogrammable calculator & any ons written on main answer boo at diagrams and figures (if nece suitable data if needed.	other electronic instrument is problem of the strictly to be obeyed. essary) at right places.	rohibited.
Q-1		Attem	pt the following questions:		(14)
	a)	What c	lo you mean by successor?		
	<b>b</b> )	What i	s space complexity?		
	<b>c</b> )	What c	lo you mean by non linear data	structure?	
	<b>d</b> )	What i	s worst case analysis?		
	e) f)	What 1 What i	s Hashing?	tructure?	
	ι) σ)	What i	s notish expression?		
	<b>b</b> )	What d	lo you mean by a field?		
	i)	What i	s Graph? Enlist types of graph.		
	j)	Compl answer	exity of sequential search is les	ss than quick sort. True or false?	P Justify your
	<b>k</b> )	Give th	he name of a person who had w	ritten Scan algorithm.	
	l)	What i	s recursion?		
	m)	What c	· Symbol Table		
Atte	mpt any f	four que	stions from Q-2 to Q-8		
0-2		Attem	pt all questions		(14)
τ-	a)	Write a	an algorithm for Selection Sort.		05
	<b>b</b> )	Write a	C program to calculate sum of	f all the digits of an integer num	ber using 05
		recursi	on.		
	c)	Explain	n any two linear data structures		04
Q-3		Attem	pt all questions		(14)
	a)	Write a	an algorithm for Linear Searchi	ing.	5
	<b>b</b> )	Conver	t the following expression into	Prefix and Postfix notations.	5
		$((\mathbf{A} + \mathbf{I}))$	S * C) / D - E + (F * G) + H		
			Page	1    2	
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	c)	What is an Array? Explain the applications of an Array.	4	
Q-4		Attempt all questions	(14)	
	a)	Write algorithms to insert and delete elements from a stack.	7	
	b)	Write a C Program to calculate average of all the elements of a 3 X 3 matrix.	7	
Q-5		Attempt all questions		
C	a)	Write a note on : Binary Tree.	7	
	b)	Write algorithms to insert an element at beginning and delete an element from the middle of a doubly linked list.	7	
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)	
c	a)	Explain Prim's Algorithm with suitable example.	7	
	<b>b</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>b</b> )	Explain Jarvis March algorithm.	7	

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