Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name : Introduction to Algorithms & Data Structures

Subject Code : 4CS04IDS1 **Branch: B.Sc.I.T.**

Semester : 4 **Date : 15/04/2017** **Time : 10:30 To 01:30** **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 **Attempt the following questions:** **(14)**

a)	What is flowchart?	**1**
b)	What is recursion?	**1**
c)	What is the order of growth of linear search operation?	**1**
d)	Exp(2,-3)=_____?	**1**
e)	Data must be sorted in _____ search (Linear/Binary).	**1**
f)	Write names of any two linear Data Structure?	**1**
g)	In Empty stack value of Top of stack is _____?	**1**
h)	What is Linked List?	**1**
i)	Which symbol is used for assignment statement in algorithm?	**1**
j)	DFS Stands for_____?	**1**
k)	Explain : Edge, Vertex	**1**
l)	Explain: Hash Function.	**1**
m)	Explain: leaf node.	**1**
n)	Explain: MST	**1**

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

a)	Explain Complexity of algorithm with suitable example.	**05**

	b)	What are the available tools for writing algorithm?	**05**
	c)	What is algorithm? Explain characteristics of algorithm	**04**
Q-3		**Attempt all questions**	**(14)**
	a)	Write a note on Asymptotic notations	**07**
	b)	Explain Quick sort with algorithm and Example.	**07**
Q-4		**Attempt all questions**	**(14)**
	a)	What Is stack? Write algorithm for PUSH and POP operation on stack	**07**
	b)	Explain Insertion operation in Double Ended Queue	**07**
Q-5		**Attempt all questions**	**(14)**
	a)	Explain Hash Table Data Structure	**07**
	b)	Explain naive method for pattern matching.	**07**
Q-6		**Attempt all questions**	**(14)**
	a)	Explain AVL tree rotations with Example.	**07**
	b)	Explain Binary Tree Traversal with algorithm.	**07**
Q-7		**Attempt all questions**	**(14)**
	a)	Explain Krushkal's algorithm with Example.	**05**
	b)	Explain: leaf node, siblings and root node.	**05**
	c)	Explain: Topological sort.	**04**
Q-8		**Attempt all questions**	**(14)**
	a)	Explain Dijkstra's Algorithm.	**07**
	b)	Explain BFS graph traversal methods.	**07**