C.U.SHAH UNIVERSITY
Summer Examination-2017

Subject Name: Advanced C and Data Structure

Subject Code: 4CS02IDS2   **Branch: B.Sc. IT**

Semester: 2   **Date: 06/05/2017**   **Time: 02:00 To 05:00**   **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) Which operator is used to declare pointer variable?

b) When pointer points to an array it points array's _____ address.

c) What is UDF?

d) What is Linked List?

e) Write any two non linear data structure?

f) Stack is _____ data structure. (LIFO/FIFO)

g) When Queue is empty, value of front pointer is _____?

h) Write structure of node in singly linked list?

i) Write any 2 operations of stack.

j) Explain: free () function.

k) Define: Character array in 'c'

l) Define: Edge

m) Define: Siblings.

n) Define: Binary Tree.

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

Q-2		**Attempt all questions**	
	a)	Explain arrays of pointer with example.	**(05)**
	b)	Explain Doubly link list? Explain its node structure.	**(05)**
	c)	What is an algorithm? Explain characteristics of algorithm	**(04)**

Q-3		**Attempt all questions**	
	a)	What is pointer? Explain array and pointer with example.	**(07)**
	b)	Explain Memory Allocation in 'C'.	**(07)**

Q-4		**Attempt all questions**	
	a)	Write an algorithm for binary search.	**(05)**
	b)	Write an algorithm for insert data into linear queue.	**(05)**
	c)	Write an algorithm for create singly linked list.	**(04)**

Q-5		**Attempt all questions**	
	a)	What is array? Explain how to pass array into function?	**(07)**
	b)	What is UDF? Explain types of UDF with example.	**(07)**

Q-6		**Attempt all questions**	
	a)	Create binary tree for following values and write in order and post order traversal with algorithm. 50,30,20,70,85,62,35,40,37	**(07)**
	b)	What is stack? Explain PUSH and POP operation on stack using array.	**(07)**

Q-7		**Attempt all questions**	
	a)	Write a program for create and insert node at end of linked list	**(07)**
	b)	Write a note on linear data structure (any two).	**(07)**

Q-8		**Attempt all questions**	
	a)	Explain Selection Sort with example.	**(05)**
	b)	Explain the term: root node, leaf node, siblings and level of tree	**(05)**
	c)	State difference between Stack and Queue	**(04)**