**Enrollment No: _____ Exam Seat No:_____**

# C.U.SHAH UNIVERSITY

## Winter Examination-2019

**Subject Name : Advanced C and Data Structure**

**Subject Code : 4CS02IDS2 Branch: B.Sc.I.T.**

**Semester: 2 Date : 16/09/2019 Time : 02:30 To 05:30 Marks : 70**

**Instructions:**

(1) Use of Programmable calculator and 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.

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**Q-1 Attempt the following questions: (14)**

| | | |
|---|---|---|
| **a)** | **Define term :** Stack | 1 |
| **b)** | **Define term** : Queue | 1 |
| **c)** | Write down the full form of UDF. | 1 |
| **d)** | **Define term** : NULL POINTER | 1 |
| **e)** | Write down the full form of LIFO. | 1 |
| **f)** | Write down the full form of FIFO. | 1 |
| **g)** | What is recursion? | 1 |
| **h)** | What is tree? | 1 |
| **i)** | What is searching? | 1 |
| **j)** | What is sorting? | 1 |
| **k)** | Enlist the types of Data Structure. | 1 |
| **l)** | **Define term** : Tree | 1 |
| **m)** | What is an AVL tree? | 1 |
| **n)** | What is prefix and post fix notation? | 1 |

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

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

**(A)** Enlist and explain the characteristics of algorithm. **(7)**

**(B)** Explain the Advantages of Pointer. **(7)**

**Q-3 Attempt all questions (14)**

**(A)** Differentiate ***Call by value*** *versus* ***Call by reference with example.*** **(7)**

**(B)** Differentiate **Linear Data Structure** Versus **non-linear Data Structure.** **(7)**

| | | | |
|---|---|---|---|
| **Q-4** | | **Attempt all questions** | **(14)** |
| | **(A)** | What is Memory Allocation? Explain malloc() and Calloc() function with syntax and example. | **(7)** |
| | **(B)** | Write a C Program to search an element in an array using Linear Search. | **(7)** |
| **Q-5** | | **Attempt all questions** | **(14)** |
| | **(A)** | What is Pointer? Explain Array Pointer with Example. | **(7)** |
| | **(B)** | Explain Insertion and Deletion Operation in Binary Search Tree with Example. | **(7)** |
| **Q-6** | | **Attempt all questions** | **(14)** |
| | **(A)** | Write a program for insertion in doubly linked list. | **(7)** |
| | **(B)** | What is bubble sort? Explain bubble sort with example. | **(7)** |
| **Q-7** | | Explain Stack Application in brief. Write an algorithm of PUSH,POP and PEEP operation on stack. | **(14)** |
| **Q-8** | | **Attempt all questions** | **(14)** |
| | **(A)** | Write a brief note on Binary tree… | **(7)** |
| | **(B)** | Explain Selection sort with example. | **(7)** |