Enrollment No: _____   Exam Seat No:_____

C.U.SHAH UNIVERSITY
Winter Examination-2015

Subject Name: Data and File Structures

Subject Code: 2TE04DFS1   Branch: COMPUTER ENGINEERING

Semester : 04   Date : 19/11/2015   Time: 2:30 PM To 5:30 PM   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.
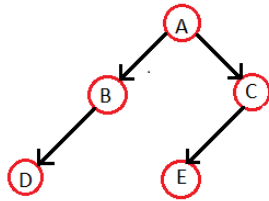 (4) Assume suitable data if needed.

Q-1   Attempt the following questions: (14)

  1.   A stack works in _____ manner.
       a) LIFO   b) FIFO   c) FILO   d) LOFI
  2.   In queue insert and delete operations are performed at different ends of queue.
        a) True   b) False
  3.   The insertion operation in the stack is called _____.
        a) PUSH   b) POP   c) PEEP   d) TOP
  4.   A binary tree whose every node has either zero or two children is called _____.
        a) Complete binary tree   b) Binary Search tree
        c) Extended binary tree   d) Forest
  5.   Another name of dequeue is _____.
        a) Double Ended Queue   b) Divided Queue   c) Design Queue   d) Data Queue
  6.   _____ is a collection of elements of same data type.
        a) Structure   b) Union   c) Array   d) List
  7.   Nodes with no children are called _____ Nodes.
        a) Leaf   b) Root   c) Isolated   d) Weighted
  8.   Which of the following is not a type of Linked List?
        a) Doubly Linked List   b) Hybrid Linked List
        c) Singly Linked List   d) Circular Linked List
  9.   A linear list in which the last node points to the first node is _____
        a) Hybrid Linked List b) Doubly Linked List
        c) Singly Linked List   d) Circular Linked List
  10. _____ is an array of characters.
        a) Structure   b) Linked List   c) String   d) Graph

11.

INORDER Traversal for the given tree is.
  a) D B A E C   b) A B C D E   c) E C A B D   d) A D E B C

12. Which among the following is not a linear data structure?
  a) STACK   b) TREE   c) QUEUE   d) ARRAY

13. Full Form of BFS is _____.
  a) Break Fast Search   b) Breadth First Search
  c) Back Frame Search   d) Bring First Search

14. What will be the postfix expression for following infix expression
  B * C + D / E
  a) BC*DE+/   b) B*CDE/+   c) BC*DE/+   d) BCD*E/+

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

Q-2	**Attempt all questions**	
a)	Describe types of data structure.	**(07)**
b)	Explain stack and write algorithms of PUSH and POP operations.	**(07)**
Q-3	**Attempt all questions**	
a)	What is queue? Write an algorithm for insert operation in queue.	**(07)**
b)	What is array? Explain characteristics of array.	**(07)**
Q-4	**Attempt all questions**	
a)	Write an algorithm of bubble sort.	**(07)**
b)	Give tracing of following list of numbers using Selection sort. 23,32,47,11, 65,99,57,84	**(07)**
Q-5	**Attempt all questions**	
a)	Write a program to find the length of given string.	**(07)**
b)	Write an algorithm for binary search.	**(07)**
Q-6	**Attempt all questions**	
a)	What is binary tree? Explain operation on binary tree.	**(07)**
b)	What is Tree traversal? Explain different types of tree traversal with example.	**(07)**
Q-7	**Attempt all questions**	**(07)**
a)	Write an algorithm to DELETE a node in Doubly Linked List	**(07)**
b)	Write an algorithm for insert a node at the end of the singly link list.	

Q-8   **Attempt all questions**
   a) Explain recursion with example.   **(05)**
   b) Convert following expression into the postfix expression: **(05)**
      (a / b) * (c / (d + e) - f)
   c) Define following   **(04)**
      1. Root node
      2. Leaf node
      3. Directed graph
      4. Weighted graph