

S.B. Roll No.....

DATA STRUCTURE USING C
4th Exam/Comp/IT/CSE/0622/Nov'18

Duration: 3Hrs.

M.Marks:75

SECTION-A

Q1. Do as directed.

10x1.5=15

- a. What is stack Overflow?
- b. Array is a _____ Data structure.
- c. A binary tree can have at most _____ children
- d. In stack elements can push and pop through _____ only
- e. Queue follow the property of LIFO (T/F)
- f. A node is Divided into two parts first is _____ and 2nd is _____.
- g. Tree is _____ data structure
- h. Time Complexity of Binary search is $O(\log_2 n)$. True/False
- i. Big Oh notation describes the _____ of an algorithm.
- j. An algorithm is sequence of _____ to complete a task.

SECTION-B

Q2. Attempt any five questions.

5x6=30

- i. Define Data structure. Explain types of Data Structure .
- ii. Write Binary search algorithm and explain briefly?
- iii. Define postfix evaluation algorithm with following infix expression.
 $((A+2)*(B+7))-3$, (convert this into postfix first). You may take any positive value for A and B.
- iv. What is Linked list? Write an algorithm to insert an element at any location in linked list.
- v. Explain bottom up and top down programming methodologies.
- vi. Explain one application of each stack and queue.
- vii. What are the drawbacks of linked list and how we can overcome them?
- viii. Write algorithms to push and pop an element through stack.

SECTION-C

Q3. Attempt any two questions.

2x15=30

- a. Write an algorithm to convert infix notation to postfix Notation.
- b. Write a note on any three
 - i. Binary Tree
 - ii. De-queue
 - iii. Recursion.
 - iv. Memory representation of an array
- c. What do you understand by Binary tree traversal? Explain various traversal techniques with suitable example.
- d. Write an algorithm to traverse a linked list and also to search a node in linked list.