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.