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3CCI02

# Siddaganga Institute of Technology, Tumkur – 572 103

## Department of Computer Science and Engineering

Data structures (3CCI02)

Tutorial-8

Semester : III Section: ' '

Academic year:

**Answer the following Questions:**

1. Transform each of the following expressin to pre and postfix,show contents of stack clearly.
   a) (A+B)*(C$(D-E)+F)-G
   b) A+(((B-C)*(D-E)+F)/G)$(H-J)
   c) (A$B$C)/2
2. Apply the evaluation algorithm in the text to evaluate the following postfix expression. Assume A=1,B=2,C=3.
   a) AB+C=BA+C$-
   b) ABC+*CBA- +*
3. Write a C program to implement stack of student records with details USN,Name, branch,CGPA and Address using array of structure variable.Write C functions to push 10 records on to stack and find the MAX_CGPA and MIN_CGPA in those records by poping those records.
4. WRITE A C routine to accept as input a character string of operators and operands representing a postfix expression and to create the fully parenthesized infix form of the original postfix.for example,AB + would be transformed into (A+B) and AB+C- would be transformed into ((A+B)+C).
5. Write recursive C function to find the length of a given string.

Tutorial-9

6. Write a menu driven program to create a linked list of a class of students with details USN,Name,branch,CGPA and perform the following operations:
   a) write out the contents of the list.
   b) Edit the details of a specified student.
   c) Count the number of students above a specified age and weight.
7. For the above program add C routine to sort the linked list in ascending order based on USN.
8. Write a recursive C function to reverse the linked list.
9. Write a C program to create ordered linear linked list of customer names and their details(phone no,address). The program must be menu driven and includes features for addition ,deletion and modification of customer details.
10. Write C routines to implement the following operations on SLL:
    a) Insert after a given node.
    b) Insert before a given node.
    c) Delete after a given node.
    d) Delete before a given node.
11. Write C routines to implement the following operations on SLL with header node:
    a) Insert after a given node.
    b) Insert before a given node.
    c) Delete after a given node.
    d) Delete before a given node.