Register No : 2013110464 Experiment No : 05 Date: 8/6/22

S.NO	Component	Max. Marks	Marks Secured
1	Preparedness	2	2
2	Viva-Voce	2	2
3	experiment	3	3
4	Analysis & Record	3	3
	Total	10	10
Date	10/6/22	Signature of the lab teacher [illegible]	

a) Write a program to infix to postfix conversion.

Aim : To write a program to infix to postfix conversion

Program :

```
#include <stdio.h>
#include <conio.h>
# include <ctype.h>
# define MAX50
Struct stack
{
int data [MAX];
int top;
}
int percentage(char);
void unit (Struct stack *);
int empty( Struct stack*);
int full (Struct stack*);
int pop (Struct stack*);
Void push (Struct stack * ;int);
int top (Struct stack *);
Void infix - to- push (char infix [],
            Char pastfix [ ]);
Void infix - to - postfix (char infix [],
```

```
{
Struct stacks;
Charx , taken;
int i,j ;
init (&s);
j=0
for(i=0; infix[i]='\0'; i++)
{
taken= infix [i];
if (is a lnum Htoken)]
postfix [j ++ ]) = token:
else
if (token == '(')
    push (&s;(')) ;
    else
    if (token =='\')
    while ((x = pus(&s)) ='(')
    post fix [j ++] = x;
    else
    {
```

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```
while (precedence(token) <=precedence
        top(&s) && ! empty(&s))
  {
    x = pop(&s);
   post fix [f++] = x;
  }
  push (&s, token);
 }
}
while (! empty (&s))
  {
   x = pop (&s)
 post fix [j++] = x;
}
post fix [j] = '\0';
}
int precedence (char x)
{
int (x == '(')
return(0);
if (x == '+'||x == '-')
return (1);
if (x == |'*'||x = '.|.')
 return(2);
 if (x == '^')
 return (3);
}
 void (init (struct stack*s)
 {
  s -> top = -1;
 }
 int empty (struct stack *s)
 {
```

```
 if (s -> top = = -1)
 return (1);
 return (0);
 }
 if (s -> top = = MAX-1)
 return (1);
 return (0);
 }
 void push(struct, struct* s, int x)
{
s -> top = s -> top+1;
s -> data [s -> top] = x;
}
int pop (struct stack * s)
  {
   int x;
  x = s -> data [s -> top];
  s -> top = s -> top - 1;
  return(x);
 }
 int top (struct stack *s)
 {
 return (s -> data [s -> top]);
 }
void main ()
{
char intf [30], postfix [30];
printf("enter an infix exp");
gets(infix);
infix - to - postfix (infix , postfix);
printf("\n postfix exp: %s", postfix);
```

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b) write a program to evaluate postfix expression ?

Aim: To write a program to evaluate postfix expression

Program:

```
#include <stdio.h>
 # define MAX 20
  struct Stack
 {
 int data [MAX]
 int top ;
 };
 int evaluate (char x, int op1,
                          int op2)
 {
 if (x == '+')
 return (op1 top2);
 if (x=='-')
 return ( op1-op2):
 if (x=="*")
 return( op1 * op2);
 if (x == '/')
 return (op1 /op2);
  if (x == '%');
 return (op1 % op2);
 }
 void init (struct stack *s)
 {
  s ->top = -1
 }
 init (struct stack * s)
 {
 if (s -> top == -1)
 return(1)
 else
 return(0);
 }
int full (struct stack *s)
{
if (s ->top == MAX -1)
return (1);
else
return (0);
}
void push (struct stack *s, int
{
s -> top= s-> top + 1;
s -> data [s -> top] = x ;
}
int pop (struct stack *s)
{
 int x;
 x= s -> data [s -> top] ;
s -> top = s -> top -1;
 return(x);
}
int main()
```

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```
{
struct stack s;
char x;
int op1, op2, value,
init (&s);
printf ("enter the expression \n single digit operand &
    operation only);
whild( x= getcha ()! ='\n');
 {
 if (is digit(x))
  push( &s, x-48):
else
{
 op2= pop( &s)
  op2= pop(&s)
 val= evaluate (x, op1, op2);
 push[ &s, val];
}
}
value = pop(&s);
printf("\n value of expression = %d", value);
 return 0,
 }
```

[illegible]