EX.NO.5 DESK CALCULATOR USING YACC

Aim:

To write Lex program to recognize relevant tokens required for the Yacc parser to implement desk calculator.

cal.l:

```
%{
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "y.tab.h"
#include<math.h>
extern int yylval;
%}
%%
[0-9]+ { yylval = atoi(yytext); return INTEGER; }
("+"|"-"|"*"|"/"|"^"|"("|")"|"\n") { return *yytext; }
. {
char err[25];
sprintf(err, "Invalid character: %s\n", yytext);
}
```

cal.y

```
%{
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
int yylex(void);
int yyerror(char* s);
#include "y.tab.h"
%}
%token INTEGER

%%
program: line program
| line
line: expr '\n' { printf("%d\n", $1); }
expr: expr '+' mulex { $$ = $1 + $3; }
| expr '-' mulex { $$ = $1 - $3; }
```

```
| mulex { $$ = $1; }
mulex: mulex '*' powex { $$ = $1 * $3; }
| mulex '/' powex { $$ = $1 / $3; }
| powex { $$ = $1; }
powex: powex '^' term { $$ = pow($1, $3); }
| term { $$ = $1; }
term: '(' expr ')' { $$ = $2; }
| INTEGER { $$ = $1; }
;
%%
int yyerror(char* s)
{
fprintf(stderr, "%s\n", s);
return 0;
}
int yywrap()
{
return 1;
}
int main()
{
yyparse();
return 0;
}
```

OUTPUT:

```
csec86@ccl-06:~/cdlab/ex5$ gcc  lex.yy.c y.tab.c -lm
csec86@ccl-06:~/cdlab/ex5$ ./a.out
1+2
3
4-3
1
12/4
3
15/2
7
3*6
18
6^3
216
(2-3)*(7+4)
-11
```