

6a) Program to recognize a valid arithmetic expression that uses operators +, -, * and /.

6a.i

```
% {  
  
#include "y.tab.h"  
  
% }  
  
%%  
  
[0-9]+(\.[0-9]+)? {return NUM;}  
  
[a-zA-Z][_a-zA-Z0-9]* {return ID;}  
  
[\t]    ;  
  
\n      {return 0;}  
  
.       {return yytext[0];}  
  
%%  
  
int yywrap() { }
```

6a.y

```
% {  
  
#include<stdio.h>  
  
% }  
  
%token NUM ID  
  
%left '+' '-'  
  
%left '*' '/'  
  
%%  
  
expr:e { printf("This is Valid Expression"); exit(0);}  
  
e:e+'e'  
  
| e '-' e  
  
| e '*' e  
  
| e '/' e
```

| '('e')'

| NUM

| ID ;

%%

```
int main()
```

```
{
```

```
printf("\nType the expression to be tested\n");
```

```
    yyparse();
```

```
    return 0;
```

```
}
```

```
int yyerror()
```

```
{
```

```
printf("\n Invalid expression! \n");
```

```
exit(0);
```

```
}
```

Commands For Execution

```
lex 6b.l
```

```
yacc 6b.y
```

```
yacc -y -d 6b.y
```

```
gcc lex.yy.c y.tab.c -o 6b.exe
```

```
6b.exe
```

Output

```
C:\windows\system32\cmd.exe

C:\Users\Prameetha\Desktop\SS\ss>6a.exe
Type the expression to be tested
a+b
This is Valid Expression
C:\Users\Prameetha\Desktop\SS\ss>6a.exe
Type the expression to be tested
5*4
This is Valid Expression
C:\Users\Prameetha\Desktop\SS\ss>6a.exe
Type the expression to be tested
3*
Invalid expression!
C:\Users\Prameetha\Desktop\SS\ss>
```