

Exper4.1:

```
%{
#include<stdio.h>
#include "y.tab.h"
}%
L [A-Za-z]
D [0-9]
id {L}({L}|{D})*
%%

"if" {return IF;}
"else" {return ELSE;}
"for" {return FOR;}
"do" {return DO;}
"while" {return WHILE;}
"++" {return INC;}
"--" {return DEC;}
"||" {return OR;}
"&&" {return AND;}
"!" {return NOT;}
"switch" {return SWITCH;}
"case" {return CASE;}
"break" {return BREAK;}
"default" {return DEFAULT;}
[0-9]+(\.[0-9]+)? {return NUM;}
{id} {return id;}
"<"| "<="| ">"| ">="| "=="| "!=" {return relop;}
[-/;=+*,\(\)\{\}\:] {return yytext[0];}
[ ] {}
\n {}
%%

int yywrap()
{
```

```
return 1;
}
```

Exper4.y

```
%{
#include <stdio.h>
%}

%token id NUM OR AND NOT relop TRUE FALSE INC DEC IF ELSE DO WHILE uminu
s FOR SWITCH CASE BREAK DEFAULT

%right '='
%left '+' '-'
%left '*' '/'
%right '^'
%nonassoc uminus
%left OR
%left AND
%nonassoc NOT
%%
```

```
S1 : S1 S
    | S
    ;
S : AS ';' {printf("Assignment statement accepted \n");}
    |IFS {printf("If statement is accepted \n");}
    |IFES {printf("If else statement is accepted\n");}
    |WS {printf("While statement is accepted\n");}
    |DWS {printf("Do while statement is accepted\n");}
    |FORS {printf("For statement is accepted\n");}
    |SS {printf("Switch statement is accepted");}
    ;
SS : SWITCH('E') '{ CV '}'
    ;
CV : CASE E ':' S1 BREAK ';
```

```

| CASE E ':' S1 BREAK ';' CV
| CASE E ':' S1 BREAK ';' DEFAULT ':' S1
;
AS : id '=' E
;
E : E '+' E
| E '-' E
| E '*' E
| E '/' E
| E '^' E
| '-' E %prec uminus
| id
| NUM
;
IFS: IF('BE') '{S1}'
;
BE : BE OR BE
| BE AND BE
| NOT BE
| id relop id
| TRUE
| FALSE
;
IFES : IF('BE') '{S1}' ELSE '{S1}'
;
WS : WHILE 'BE' '{S1}'
;
DWS : DO '{S1}' WHILE 'BE';
;
FORS : FOR('IS';'BE';'MS') '{S1}'
;
IS : AS
| IS ',' AS

```

```

;
MS : IS
| id INC
| INC id
| id DEC
| DEC id
;
%%

void main()
{
    yyparse();
}

int yyerror(char *msg)
{
    printf("%s\n",msg);
}

```

The screenshot shows a web-based terminal interface with the following content:

```

Compiler Design Syllabus.pdf x exp4 - CoCalc
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~$ yacc -d -v exper.y
/usr/bin/bison: exper.y: cannot open: No such file or directory
~$ yacc -d -v exper4.y
~$ lex expr4.l
lex: can't open expr4.l
~$ lex expr4.l
~$ gcc lex.yy.c y.tab.c
y.tab.c: In function 'yyparse':
y.tab.c:1173:16: warning: implicit declaration of function 'yylex' [-Wimplicit-function-declaration]
1173 |         yychar = yylex ();
      |         ^~~~~~
y.tab.c:1350:17: warning: implicit declaration of function 'yyerror'; did you mean 'yyerrok'? [-Wimplicit-function-declaration]
1350 |         yyerror ("syntax error");
      |         ^~~~~~
      |         yyerrok

~$ ./a.out
a=b+c;
Assignment statement accepted
while(xzy)
{
    if(x==y)
    {
        x=x+1;
        Assignment statement accepted
    }
}
If statement is accepted
while statement is accepted

```