

Sankalchand Patel College of Engineering, Visnagar
Computer Engineering Department
ME Computer Engineering (IInd Sem)
Sub: Design of Language Processors (1720202)

ASSIGNMENT - 1

Sr. No.	Assignment Questions
1	List phases of a compiler and give examples of errors detected by each phase. Explain need of intermediate code generator phase.
2	Write unambiguous production rules for arithmetic expression consisting of following operators: +, - (binary), - (unary), (), *, /, ^ (exponent). Draw parse tree for following : $id * id + (id ^ id ^ id) * id * id$
3	Explain working of shift reduce parser. Parse following string using unambiguous production rules: $id * id / id ^ id - id + id$
4	What is left factoring? Give example. Write unambiguous production rules for if then else construct.
5	Explain working of an operator precedence parser. Construct precedence graph and precedence table for operators id, +, *, /, \$. Parse following string : $\$ id + id * id / id \$$
6	Find first & follow to construct parse table for terminal symbols consisting of id, +, -, /, (), \$ for unambiguous production rules for non-recursive predictive parser. Parse following string: $id + id / id / (id + id)$
7	Construct DFA with out constructing NFA for following regular expression: $(a b)^* (b c)^* a^* \#$ Write production rules from constructed DFA.
8	Construct NFA and then DFA for following regular expression: $(a b)(b^* c^*) a^* \#$
9	What is called symbol table? Explain its' importance during compilation process.
10	Define token. Explain how it differs from pattern and lexeme. Find token, pattern and lexeme from following expressions. 1. $if(x \leq 5)$ 2. $total = sum + 12.5$
11	Construct NFA for following regular expression and convert it into DFA. $a + b^* (c d e) a^* \#$
12	Construct DFA for following regular expression without constructing NFA and optimize the same. $(a b)^* a b (a b)^* \#$
13	What is the difference between syntax tree and parse tree? Explain it with proper example.
14	What is called ambiguous grammar? Explain it with suitable example.
15	Find first and follow for following grammar and construct predictive parsing table. Is this grammar LL(1)? $S \rightarrow a A B b$ $A \rightarrow c \epsilon$ $B \rightarrow d \epsilon$
17	Find LR(0) items for following grammar and construct SLR parsing table. $S \rightarrow A a A b$ $S \rightarrow B b B a$ $A \rightarrow \epsilon$ $B \rightarrow \epsilon$