**Compiler Design**

**Unit-1**

**1.**Explain the various phases of a compiler in detailed

l. Also Write down the output for the following expression after each phase position=initial+rate*60.

2. Design the LEX program that recognizes the tokens of a C language and returns the token found.

3. Write down the steps in constructing DFA for the regular expression (a/b)*aab(a/b)*.

**Unit-2**

b) What is ambiguous grammar? Show that following grammar is ambiguous or not.v

A → A + A | A − A | A *

A | a4)Verify whether the following grammar is LL(1)1. Construct Predictive parsing table for the following grammar:

E->E+T/T, T->T*F/F, F->(E)/id and check whether the string id+id*id belongs to that language or not

2. Construct SLR or LR(0)table for the following grammar:

E->E+T/T, T->T*F/F, F->(E)/id and parse input string id*id+id

3a)What is Left Recursion? Eliminate left recursion for the following grammar

E->E+T/T, T->T*F/F, F->(E)/id

or not?

S->iEts|iEtSeS|a

5) Consider the grammar. S->CC,C->cC|d Construct CLR or LR(1) parsing table for the above grammar.

**Unit-3**

1)Give syntax directed translation scheme for simple desk calculator.

2) Construct a Quadruple, Triple and Indirect triple for the statement a + a * (b – c) + (b – c) * d

3) How would you generate the intermediate code for the flow of control statements? Explain with examples.

## Unit-4

**1)**Explain various storage allocation strategies with its merits and demerits

2) What is a basic block? How to construct a basic block?

3) Explain peephole optimization with an illustrative example.

## Unit-5

**1)** What are the principle sources of optimization? Give the classification of code optimization.

2) Explain various notations used in data flow analysis.

3) Explain the following with an example a) Constant Propagation b) Partial Redundancy Elimination.