8. (i) Explain the various types of errors generated by different phases of complier ? How error handler phase deals with these errors ?

(ii) What do you mean by symbol table ? Explain the various data structures associated with symbol table.

9. Write short notes on the following :

(a) Loop Optimization

(b) Peephole Optimization

(c) Directed Acyclic Graph

(d) Loop Unrolling & Loop Jamming

Roll No. .....

24488

B. Tech. 7th Sem. (CSE) (Re-appear)

Examination – October, 2020

COMPILER-DESIGN

Paper : CSE-405-F

Time : 1.45 Hours] ***[Maximum Marks : 100***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any ***three*** questions. All questions carry equal marks.

1. Describe the following :

(i) What is context free grammar ? Explain with example.

(ii) What is YACC tool ?

(iii) What are machine dependent codes? Describe.

(iv) What is symbol table ?

2. (i) Describe the structure of compiler with its phases with the help of an example.

(ii) How do we implement lexical analyzer ? Explain step by step procedure.

3. (i) What is input buffering ? How it helps in construction of compiler ? Explain.

(ii) Construct the transition diagram for the following regular expressions :

(i) (a/b)*abb(a/b)* (ii) (a/b)/(ab)*b/a*(bb)*

4. (i) What is parsing ? Explain Chomsky hierarchy of grammars.

(ii) What is context free grammar ? Find the context free grammars for the languages with $n \geq 0$, $m \geq 0$.

5. (i) Test whether the grammar is LL(1) or not and construct a predictive parsing table for it.

$S \rightarrow A \mid a$, $A \rightarrow a$

(ii) Explain shift reduce parsing in detail.

6. (i) Construct the LR(0) parsing table for the following grammar.

$S \rightarrow L = R$

$S \rightarrow R$

$L \rightarrow * R$

$L \rightarrow id$

$R \rightarrow L$

Check whether this above grammar is LR (0) grammar is not.

(ii) Check whether the following grammar is LR (1) or not ?

$S \rightarrow CC$

$C \rightarrow cC \mid b$

7. (i) State and explain the syntax directed translation scheme for the desk calculator and give the parse tree and translation for the string (7+4) * 249/3 + 26.

(ii) What do you mean by three address code ? Convert the following statements into the Quadruple, Triple and Indirect triple representation : (A+B)*(C – D*E).