Roll No. .....

24488

B. Tech. 7th Semester (CSE) Examination – May, 2019

COMPILER DESIGN

Paper : CSE-405-F

Time : Three 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 ***five*** questions, selecting ***one*** question from each Section and Question No. 1 is ***compulsory.***

1. Describe the following : 4 × 5 = 20

(i) What is bookkeeping ?

(ii) What is YACC tool ?

(iii) How activation trees help in stack allocation ? Describe.

(iv) Role of parser.

SECTION – A

2. (a) What are language processors ? Explain structure of a compiler in detail. 12

(b) Explain various compiler construction tools. 8

3. (a) Explain the algorithm of minimization of number of states of DFA with example. 10

(b) How do we implement lexical analyzer ? Explain step by step procedure. 10

SECTION – B

4. (i) Explain the role of the parser in detail. 10

(ii) What is context free grammar ? Explain the procedure of removal of ambiguity from the grammar. 10

5. (i) Test whether the grammar is LL(1) or not and construct a predictive parsing table for it. 10

$S \rightarrow AaAb \mid BaBa, A \rightarrow c, B \rightarrow c$

(ii) Explain shift reduce parsing in detail with example. 10

SECTION – C

6. Check whether the following grammar is LR (0) or not. 20

$$E \rightarrow E + T \mid T$$

$$T \rightarrow T * F \mid F$$

$$F \rightarrow (E) \mid id$$

7. (i) State and explain the syntax directed translation scheme for the desk calculator and give the parse tree and translation for the string (9*2) + 78 – 18. 10

(ii) What is intermediate code representation ? Convert the following into three address code, quadruples, triples and indirect triples : 10

(i) While (a < 5 | do a : b + 2)

(ii) –a(a + b) * (c + d) + (a + b + c)

SECTION – D

8. (i) What are different types of errors that occurs during lexical, syntactic and semantic phase ? How do we recover from these errors ? 10

(ii) How the data is stored in symbol table for block and non-block structured languages ? 10

9. (i) What do you mean by the term code optimization ? What do you understand by the term leader ? Write algorithm to identify out the basic blocks. 10

(ii) What do you mean by peephole optimization ? Explain with example. 10
