

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.

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P. T. O.

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

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

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

$$F \rightarrow (E) \mid \text{id}$$

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
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