

8. (i) Write the simple code generation algorithm if we are given the following quadruple : $A = B \text{ op } C$. 8
- (ii) Write the advantages and disadvantages of global register allocation scheme. 7

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B. Tech. EXAMINATION, 2024

(Sixth Semester)

(C-Scheme) (Main & Re-appear)

(CSE)

CSE302C

COMPILER DESIGN

Time : 3 Hours]

[Maximum Marks : 75

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

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Write the algorithm to minimize the number of states of an DFA. Apply this algorithm to minimize the below mentioned DFA : 15

	State	Input	
Start	A	B	C
	B	B	D
	C	B	C
	D	B	E
Accept	E	B	C

2. What is the role played by lexical analyzer in a compiler ? How regular expressions are used as token recognizers ? Write the procedure to convert the regular expression to finite automata. 15

Unit II

3. What do you mean by ambiguous grammar ? Write the procedure to disambiguate an ambiguous grammar. Remove the ambiguity from the following grammar :

$$E \rightarrow E + E/E - E$$

$$/E * E/E/E$$

$$/E E/(E)/$$

$$/- E/id.$$

15

4. Describe the role of a parser. By taking suitable example explain the working of an operator precedence parser. Explain all the actions in detail. 15

Unit III

5. Explain the syntax directed translation scheme for the desk calculator. Write the steps to evaluate the expression $(5*7 - 25)* 3$ according to this scheme. 15
6. What information is stored in a symbol table ? Explain any *two* data structures used for implementation of symbol table. 15

Unit IV

7. What are the principle sources of optimization in a program ? Briefly discuss any *three* approaches. 15