Roll No…… Total Pages: 3

10447

MCA/D-17

COMPILER DESIGN

Paper: MCA-14-51

Time: Three Hours Maximum Marks: 80

Note: Attempt five questions in all. Question No. 1 is compulsory. In addition to compulsory question, attempt four more questions selecting one question from each unit. All questions carry equal marks.

Compulsory Question

1. Explain the following terms with appropriate examples :
   Translators, Sentential form, Language, Left Recursive Grammar, Syntactic and Semantic Ambiguity, Basic Blocks, Quadruples, Post Fix Notation.

UNIT-I

2. Explain the different phases of Compiler with the help of a diagram. Also tabulate the differences between Interpreter and Compiler.

3. (a) Differentiate between DFA and NFA. Why this concept is used in design of Lexical analyzer?

   (b) Construct NFA for the following regular expression :
   a(a | b | c)* abb.

UNIT-II

4. What do you understand by 'Syntax Directed Translation Scheme'? Explain briefly the implementation of Syntax directed translation schemes.

5. (a) Explain how Run time storage administration is done in block structured languages.

   (b) Describe Error detection and recovery process used in compilers.

UNIT-III

6. What do you understand by 'Parsing'? Explain the following parsing methods :
   (i) Recursive-Descent Parsing.
   (ii) Operator Precedence Parsing.

7. Define LR(K) Parser with an example. Give implementation of LR parsing tables using appropriate examples.

UNIT-IV

8. What do you mean by Code optimization? Explain various types of optimization techniques used in compiler.

9. (a) Discuss various issues in the design of Code Generator.

   (b) What do you mean by Intermediate Code? How is it generated, used and useful? Explain with examples.