

521452(21)

M. C. A. (Fourth Semester) Examination,
April-May, 2018

(New Scheme)

(Computer Applications Branch)

COMPILER DESIGN

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any two parts from each unit. Assume data wherever it required.

Unit-I

- 1. (a) List the phases of compiler and explain with the help of suitable diagram and example. 10

521452(21)

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- (b) What are regular expressions? Define the rules for regular expression over alphabet Σ with example. Write the algebraic properties of regular expressions. 10
- (c) Write short notes on the following : 10
 - (i) One Pass Compiler
 - (ii) Two Pass Compiler
 - (iii) Three Pass Compiler
 - (iv) Multi Pass Compiler

Unit-II

- 2. (a) What is left recursive problem? Write the method to remove left recursive with suitable example. 10
- (b) Explain the role of shift-reduce in bottom up parsing with example. 10
- (c) What is top-down parsing? Explain role of backtrack in top down parsing with example. 10

Unit-III

- 3. (a) Discuss synthesized attributes and Inherited attributes with example. 10
- (b) Explain syntax-directed definitions for constructing syntax trees. Give proper example. 10

521452(21)

- (c) Describe acyclic graphs for any expression with the help of example. 10

Unit-IV

4. (a) Explain call by value and call by reference procedure call methods in run-time environment. 10
- (b) Discuss stack allocation and calling sequences strategies in compiler design. 10
- (c) What is an activation records? Discuss with suitable diagram. 10

Unit-V

5. (a) What is blocks? Explain how can be generate CFG from a block. 10
- (b) Explain in brief issues in the design of the code generator. 10
- (c) Write short notes on following : 10
- (i) Global data flow analysis
 - (ii) Loop Optimization