LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – COMPUTER SCIENCE

THIRD SEMESTER – APRIL 2014

CS 3875 - THEORY OF COMPUTATION AND COMPILER DESIGN

Date : 10/04/2014   Dept. No.   Max. : 100 Marks
Time : 01:00-04:00

Section – A (10 X 2 = 20 Marks)

Answer all Questions

1. Define Partial recursive function.
2. Give an example of a non-deterministic finite automata.
3. Define deterministic finite automaton.
4. List the applications of pumping lemma.
5. What is the use of Turing machine.
6. What do you mean by Interpreter?
7. Define symbol table.
8. Define left factoring.
9. What is common sub expression?
10. Define code Optimization.

Section – B (5 X 8 = 40 Marks)

Answer all Questions

11.(a) State and prove De Morgan's law.   (8)
            or
   (b) Elaborately categorize the various types of grammar with an example.   (8)

12.(a) Construct a DFA accepting all strings over {0,1} which ends with 01.   (8)
            or
   (b) Write the algorithm for pumping lemma.   (8)

13.(a) Explain about the different phases of analysis in compiling   (8)
            or
   (b) Explain about compiler construction tools.   (8)

14.(a) construct a DFA for ab (a/b)*abb   (8)
            or
   (b) Explain in detail the stack implementation of shift reduce parsing   (8)

15.(a) Differentiate loop and local optimization (8)

                or

  (b)Write an algorithm for constructing a leader and Explain it. (8)

Section – C (2 X 20 = 40 Marks)

Answer any TWO Questions

16.(a) Elaborate Chomsky classification. (10)

  (b) Using pumping lemma show that the language L= $\{a^n b^n\}$ is not regular. (10)

17.(a) Explain the universal Turing machine and its significance. (10)

  (b). Explain in detail about the phases of compiler (10)

18.(a)Explain in detail about the DAG (10)

  (b) Construct the predictive parsing table for (10)

    E->TE', E'->+TE'/ε, T->FT', T'->*FT'/ε,   F->(E)/id

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