CMR ENGINEERING COLLEGE:: HYDERABAD
UGC AUTONOMOUS
III–B.TECH–II–Semester End Examinations (Regular) - May- 2023
COMPILER DESIGN
(Common for CSE, IT, CSC, CSD)

[Time: 3 Hours]   [Max. Marks: 70]

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A   (20 Marks)

1. a) What is an Interpreter?   [2M]
   b) Define cross compiler.   [2M]
   c) What is ambiguous grammar?   [2M]
   d) List the properties of LR parser.   [2M]
   e) What are the various methods of implementing three address statements? [2M]
   f) What are the various types of intermediate code representation?   [2M]
   g) List the characteristics of peephole optimization.   [2M]
   h) What is a DAG? Mention its applications.   [2M]
   i) List the different storage allocation strategies.   [2M]
   j) Identify the constructs for optimization in basic block?   [2M]

PART-B   (50 Marks)

2. Generalize the important terminologies used in programming language basics. [10M]

OR

3. Solve the given expression a:=b+c*4 with different phases of the compiler. [10M]

4. Construct Predictive Parsing table for the following grammar.   [10M]
    E -> E+T | T
    T -> T*F | F
    F -> (E) | id
    and parse the string is id+id*id.

OR

5. Write algorithm for non recursive predictive parsing.   [10M]

6. Explain about syntax directed translation schemes?   [10M]

OR

7.a) Write a short note on L-attributed grammars.   [5M]
  b) It is required to compute the total number of reductions performed to parse a [5M]
      given input. Using synthesized attributes only write the semantic rules to find
      E. red, the number of reductions performed while reducing on input to E.
      E -> E * T | T
      T -> F – T | F
      F -> 2 | 4
      Also draw annotated tree for 4-2-4*2.

8. Explain any four issues that crop up when designing code generator.   [10M]

OR

9. What is an activation record? Explain how it is related with runtime storage   [10M]
organization?

10. Explain global data flow analysis with necessary equations.   [10M]

OR

11. Explain with example the various techniques in loop optimization.   [10M]

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