B.E.CSE (AI & ML) V - Semester (AICTE) (Backlog) (New) Examination, September /October 2023

Subject: Compiler Design

Time: 3 Hours **Max. Marks: 70**

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1. a) Define bootstrapping and the need of bootstrapping.
   b) What is left factoring and left recursion? Give an example.
   c) How to remove ambiguity from CGF grammar?
   d) Write about YACC.
   e) Differentiate between Synthesized attributes and Inherited attributes.
   f) Define Garbage Collection.
   g) Write triple notation for the following statement. X=-a+b*-a+b.

2. List out the phases of compiler? Explain all the phases in detail and write down the output for the expression a=b+c*60.

3. a) Construct SLR parsing table for the following grammar
   S→CC
   C→aC|d
   b) Find the FIRST and FOLLOW sets for each non-terminal in the below grammar
   S→Aab|Ba|ϵ
   A→aAb|ϵ
   B→bB|ϵ

4. a) Write about S-attributed definitions.
   b) Discuss various symbol table organization techniques.

5. Generate Three-Address code and write different implementation for the generated three-address code (a*b)+(c-d)*(a*b)+b.

6. a) Explain peephole optimization techniques in compilation process.
   b) Explain the different issues in the design of code generator.

7. a) List out all the difference between SDD and SDT.
   b) Explain Recursive descent parsing.

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