Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. …….

Program: B.Tech.
Semester: 6
Name of Subject: Compiler Design
Subject Code: PCCS-112
Paper ID: 17188

Time Allowed: 02 Hours **Max. Marks: 60**

NOTE:

1) Each question is of 10 marks.
2) Attempt any six questions out of nine
3) Any missing data may be assumed appropriately

Q1. Summarize in detail all phases of compiler. Also, solve the following expression and interpret the output after each phase: x = a / b * c

Q2. Justify how lexemes are recognized in lexical analysis phase. Also, explain the way for reading the source program and speeding up the process.

Q3. Consider the grammar A→ Bcx | y B→ yA | € C→ Ay | x

a) Is the grammar LL(1)? As part of your answer, examine the FIRST and FOLLOW sets for each non terminal to support your opinion.

b) Whether the string "yyyxyyxyx" derivable from the above grammar? If yes, write both the leftmost and rightmost derivation for the above string.

Q4. Construct the SLR parsing table for the given grammar.A→ Bcx | y B→ yA | € C→ Ay | x

Q5. Outline the process to assign a valid order in which the semantic rules associated with the nodes in a parse tree can be evaluated.

Q6. Interpret the role of intermediate code generation in overall compiler design. Also, determine the role of Backpatching in intermediate code generation.

Q7. Analyze the process of peephole Optimization in detail with an example.

Q8. Illustrate the necessity of optimization in compilation and the various problems in optimizing compiler design.

Q9. List the necessary and sufficient conditions for performing and discuss in detail the same:

a) Constant propagation

b) Dead code elimination

c) Loop optimization

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