MCA – 54 A

V Semester M.C.A. Examination, Feb./March 2010
COMPILER DESIGN

Time : 3 Hours Max. Marks : 100

Instructions *: 1) Answer **all** questions in Part **A, 5** out of **8** questions in Part **B** and **4** out of **6** questions in Part **C**.*
*2) Part **A :** Questions from **1** to **8** carry **1** mark **each** and **9** to **14** carry **2** marks **each.***
*3) Part **B** : **Each** question carries **8** marks.*
*4) Part **C** : **Each** question carries **10** marks.*

PART – A

1) Lexemes are found in Syntactic Analysis. True / False

2) Sentinels are used in Input buffering. True / False

3) FIRST of a terminal is a terminal. True / False

4) FOLLOW computation requires FIRST. True / False

5) Define item.

6) Define Viable prefix.

7) Zero or more occurrences of a symbol is denoted by _____

8) The Start symbol of a CFG is represented by _____

9) Explain the evolution of programming languages.

10) Explain the difference between call by value and call by reference.

11) What is Context Free Grammar ? Explain with an example.

12) Define L- attributed and S- attributed definitions.

13) What is Dependency graph ? Epxlain with an example.

14) What is Basic block ? Explain with an example.

P.T.O.

PART – B

1) Explain the different phases of a compiler.

2) Explain the role of parser with diagram.

3) What are transition diagrams ? Write the transition diagram for relational operator.

4) Explain the different error recovery strategies.

5) What is Annotated Parse Tree ? Write the annotated parse tree for the string 3 * 5 + 4n.

6) What is Shift-Reduce conflict? Explain with an example.

7) Explain calling sequences with neat diagram.

8) Write the algorithm to compute the CLOSURE(I).

PART – C

1) How do you eliminate the ambiguity in the given grammar ? Explain with the dangling else grammar example.

2) Discuss the different error recovery techniques in Predictive Parsing.

3) Explain Shift-Reduce Parsing with an example.

4) Find the Canonical LR(0) collection for the Grammar

   $S \rightarrow L = R \mid R$

   $L \rightarrow *R \mid id$

   $R \rightarrow L$

5) Write the DAG for the expression a + a * (b – c) + (b – c) * d and write the three address code and quadruple for the constructed DAG.

6) Explain the different techniques to optimize the Basic blocks.

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