Code: 9A12501 **R09**

B.Tech III Year I Semester (R09) Supplementary Examinations December 2015

AUTOMATA & COMPILER DESIGN

(Common to CSS and IT)

Time: 3 hours Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 (a) Write Regular expressions for the following.
(i) All strings of letters that contain five vowels in order
(ii) Comments consisting of a string surrounded by /* and */ without an intervening */ unless it is surrounded by "and ".
(iii) All strings of 0's and 1's that do not contain 10 as substring
(b) Construct DFA for recognizing the language generated by (0 + 1)*10. Process the input strings 001110 and 0011.

2 Write short notes on the following:
(a) Top down parsing.
(b) Error recovery in predictive parsers.
(c) Ambiguous grammars.

3 Construct SLR parsing table for the following grammar.
E → E sub E sup E / E sub E / E sup E / {E} / c
Resolve the ambiguities by assuming the operators sub and sup with same precedence and right associative. Consider the production E → E sub E sup E as special production and give higher precedence in case of conflicts.

4 (a) Differentiate between quadruples and triples.
(b) What is a dependency graph? Explain the use of dependency graph in evaluating attributes of a grammar symbol with one example

5 (a) Explain how to represent the data types in type-trees and type-graphs.
(b) What is type checker? Write translation scheme for the type checking of expression.

6 (a) What are the contents of a symbol table? Explain in detail.
(b) What is data structure used to implement a symbol table in an efficient way? Give reasons.

7 (a) What is global data flow analysis?
(b) Write briefly about various loop optimization techniques.

8 Explain about run time storage management.

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