Code: R7411904 **R07**

IV B.Tech I Semester (R07) Supplementary Examinations, May 2012

AUTOMATA & COMPILER DESIGN

(Electronics & Computer Engineering)

Time: 3 hours Max Marks: 80

Answer any FIVE Questions

All Questions carry equal marks

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1. (a) Define a regular expression. Design a DFA for accepting the language (0+1)* 10 process the string 11010.
   (b) Write about the applications of finite automata to lexical analysis.

2. Construct predictive parsing table for the grammar E -> TE´ E´-> + TE´/Є T-> FT´ T´ -> *FT´/Є F -> (E)/a. Parse the string: a+a*a using the table.

3. (a) Write about YACC in detail.
   (b) Explain the general method of shift-reduce parsers with an example.

4. (a) What is syntax directed translation? Write SDD for constructing syntax free of the expressions generated by the following grammar. E-> E+T/E-T/T T->(E)/id/num. Show the annotated parse free for the expression a - 4 + c.
   (b) Explain about the s-attributed and L-attributed grammars with examples.

5. (a) Write about the Chomsky hierarchy of languages.
   (b) Explain about various types of equivalences for type expressions with examples.

6. (a) Write in detail about stack storage allocation strategy.
   (b) Explain about various facilities provided by languages for dynamic storage allocation.

7. Explain about peephole optimization in detail with examples.

8. (a) Write about different issues to be considered in the design of a code generator.
   (b) Write the generic code generation algorithm and explain its working with an example.

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