Code :R7411904 **R7**

IV B.Tech I Semester (R07) Supplementary Examinations, May 2011
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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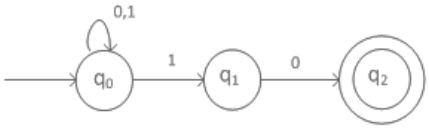
1. (a) Write in detail about LEX.
   (b) Convert the following NFA into its equivalent DFA.



2. (a) Show that the following grammar is ambiguous.
   $E \rightarrow E{+}E/E{*}E/\,(E)\,/a$.Eliminate the ambiguity using the arithmetic rules of precedence.
   (b) Show that the grammar.
   $S \rightarrow AaAb/BbBa \quad A \rightarrow E \quad B \rightarrow E$ is LL(1).

3. Construct the SLR parsing table for the following grammar.
   $E \rightarrow \frac{E+T}{T} \quad T \rightarrow {}^{TF}/_{F} \quad F \rightarrow F * |a|\,b$
   Show the moves of the parser for a+a∗b.

4. (a) Explain S- attributed and L - attributed grammars with suitable examples.
   (b) 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 $T \rightarrow (E)\,/id/num.$

5. (a) Explain about generating type expressions for overloaded functions and operations.
   (b) Write about Chomsky hierarchy of languages.

6. Explain about various storage allocation strategies in detail.

7. (a) What are the principal sources of optimization? Explain with suitable examples.
   (b) Write about optimization of basic blocks.

8. Explain in detail about register allocation and assignment.

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