Code :R5320502 **R5**

III B.Tech II Semester(R05) Supplementary Examinations, April/May 2011
COMPILER DESIGN
(Computer Science & Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) Explain the different phases of a compiler, showing the output of each phase using the example for the statement:
   x=(a+b) * (c+d)
   (b) Write short notes on bootstrapping process.
2. (a) What is recursive descent parser? Construct recursive descent parser for the following grammar.
   $E \rightarrow E + T|T$
   $T \rightarrow TF|F$
   $F \rightarrow F^*|a|b$
   (b) What is ambiguous grammar? Eliminate ambiguities for the grammar:
   $E \rightarrow E + E|E^*E|(E)|id.$
3. Construct SLR parsing table for the following grammar.
   $E \rightarrow E + T\,|T$
   $T \rightarrow T^*\,F\,|F$
   $F \rightarrow (E)|\,id$
4. (a) Describe the role of semantic analyzer in compilation process.
   (b) Define syntax directed definition. Write syntax directed definition for desk calculator.
5. Write an algorithm to perform the table lookup and insertion operation for hashed symbol table.
6. Explain different principal sources of optimization technique with suitable examples.
7. Explain the following with an example each:
   (a) Reaching Definitions
   (b) Live Variables
   (c) Busy Expressions
   (d) Available expressions.
8. (a) Describe, how addressing modes can be used for reducing the memory access time
   (b) Generate the code sequence using Code generation algorithm for the following expression
   W:=(A-B)+(A-C)+(A-C)

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