R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, May - 2016
COMPILER DESIGN
(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks
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1.a) Explain in detail about the role of lexical analyzer with the possible error recovery actions.
  b) Show how lexical analyzer is constructed using LEX? Write a LEX program for token recognizer. [8+7]

2. Construct the predictive parser table for the following grammar. And parse the string "cdcd"
   S->CC
   C->cC |d [15]

3. Construct an LALR Parsing table for the following grammar:
   E-> E+T |T
   T-> T*F|F F->id [15]

4.a) What is a three address code? Mention its types. How would you implement the three address statements? Explain with examples?
  b) Write the syntax-directed definition for if-else statement. [8+7]

5. Give an examples to explain the storage allocation for array, strings and records. [15]

6. Generate DAG representation of the following code and list out the applications of DAG representation:
   i=1; s=0;
   while(i<=10)
   s=s+a[i][i]
   i=i+1 [15]

7. Optimize the following code using various optimization technique:
   i=1; s=0;
   for (i=1; i<=3; i++)
   for (j=1;j<=3;j++)
   c[i][j]=c[i][j] + a[i][j] + b[i][j] [15]

8.a) Explain the various issues in the design of code generation.
  b) Explain code generation phase with simple code generation algorithm. [5+10]

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