Code: ICT 9A05504

ICT

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013
COMPILER DESIGN
(Computer Science and Engineering)

Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) What is a LEX tool? How LEX programs are used to perform lexical analysis?
  (b) Explain procedure for obtaining the regular expression from finite automata.

2 (a) What are the limitations of recursive descent parser?
  (b) Construct recursive descent parser for the following grammar of regular expressions.

$$E \rightarrow E+T|T$$
$$T \rightarrow TF|F$$
$$F \rightarrow F^*|a|b$$

3 (a) How to identify the operator precedence relations from associativity and precedence?
  (b) Explain about the construction of precedence functions.

4 (a) What is a type checker? How does it work?
  (b) Write a short notes on static and dynamic type checking.

5 (a) Explain dynamic scope. Differentiate between deep access and shallow access.
  (b) Discuss various parameter passing techniques.

6 (a) What do you mean by DAG? Explain the algorithm for constructing a DAG with example.
  (b) Why are quadruples preferred over triples in an optimizing compiler? Explain.

7 (a) Define flow graph. Show the relationship between DAG and flow graph.
  (b) Explain in detail about dead code elimination.

8   Generate code for the following C program.

```
main ( )
{
        int a = 10;
        int k;
        for(k =1;k<=10;k++)
        a = a*k+k/a;
}
```
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