

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

- 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;  
}
```
