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B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Sixth Semester

Computer Science Engineering

CS 337 — PRINCIPLES OF COMPILER DESIGN

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Draw the diagram of the language processing system.

2.   Define the terms : lexeme, pattern.

3.   What is a recognizer?

4.   What are the different types of error recovery strategies?

5.   What is a predictive parser?

6.   What is handle pruning?

7.   Give the ways of representing three address statements.

8.   What is back patching?

9.   What is dead code elimination?

10.   What are the limitations of static allocation?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the various phases of compiler and trace it with the program segment position : = initial + rate*60. (10)

(ii) Draw the transition diagram for unsigned numbers. (6)

Or

(b) (i) Describe in detail about the various compiler construction tools. (8)

(ii) Write briefly about input buffering. What is its role in lexical analysis? (8)

12. (a) (i) Give the minimized DFA for the following expression

$(a/b)*abb$. (10)

(ii) Explain various error recovery strategies (6)

Or

(b) (i) Give the predictive parsing table for the following grammar

$E \rightarrow E + T / T$

$T \rightarrow T * F / F$

$F \rightarrow (E)/id$

Show the moves of the parser for the input $(id + id)*id$. (10)

(ii) Explain the Role of parser in detail. (6)

13. (a) (i) Give the LR parsing table for the grammar

$E \rightarrow E + T / T$

$T \rightarrow T * F / F$

$F \rightarrow (E)/id$. (10)

(ii) Give and explain operator precedence algorithm. (6)

Or

(b) (i) Give the LALR parsing table for the grammar (10)

$S \rightarrow L = R / R$

$L \rightarrow *R/id$

$R \rightarrow L$.

(ii) Explain the stack implementation of Shift – Reduce Parsing. (6)

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14. (a) (i) Explain about the different type of three address Statements. (8)

   (ii) Give the semantic rules for declarations in a procedure. (8)

Or

   (b) (i) Discuss various ways of implementing symbol table and compare the merits and demerits. (10)

   (ii) Give the syntax directed translation for control statements. For any one example, use the transaction to convert to three address codes. (6)

15. (a) (i) Discuss about the code generation algorithm in detail. (10)

   (ii) Suggest a suitable representation for symbol tables of procedure oriented languages. (6)

Or

   (b) (i) Explain the various issues in the design of code generator. (10)

   (ii) Describe in detail about the stack allocation in memory management. (6)

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