

C 18261

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Name.....

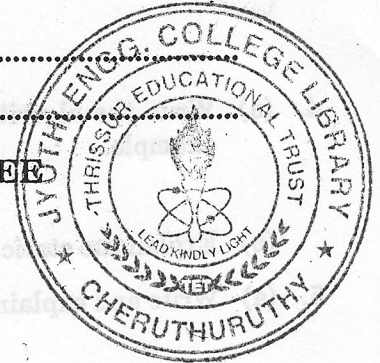
Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2011

Computer Science

CS 04 605—COMPILER DESIGN

(2004 admissions)



Time : Three Hours

Maximum : 100 Marks

Answer all questions.

1. (a) List down the issues in hexical analysis phase.
(b) Name the tool for specifying lexical analyzer and draw a block schematic diagram of its functioning.
(c) What are problems encountered in recursive descent parsers ? How are they eliminated ?
(d) Define a context free grammar. Write a context free grammar to generate palindromes using the set of $\{a, b\}$.
(e) Write the syntax directed definition for constructing a syntax tree of an expression.
(f) Explain activation free with suitable example.
(g) Distinguish between triples and indirect triples representation of three-address statements.
(h) Explain the process of code motion with example.

(8 × 5 = 40 marks)

2. (a) Consider the following while statement :

While $A > B$ & $A \leq 2 * B - 5$ do

$A := A + B$;

Write down the outputs generated at each phase of the compiler and briefly discuss how the outputs are generated.

Or

- (b) Construct a minimum-state DFA for the regular expression $(a/b)^* abb (a/b)^*$.

3. (a) Construct an SLR parsing table for the following grammar :

$S \rightarrow xAy / xBy / xAz$

$A \rightarrow aS/q$

$B \rightarrow q.$

Or

- (b) (i) Explain the predictive parsing algorithm. (8 marks)

- (ii) Write the rules for finding the first and follow elements for a grammar. (7 marks)

Turn over

4. (a) Write the algorithm to design a predictive translator. Explain the algorithm with suitable example.

Or

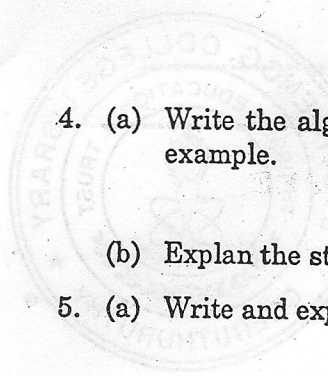
(b) Explain the static storage allocation strategy with suitable example.

5. (a) Write and explain the syntax-directed definition for four different flow of control statements.

Or

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

(4 × 15 = 60 marks)



Time: Three Hours
Maximum: 100 Marks

Answer all questions
1. (a) List down the issues in lexical analysis phase.
(b) Name the tool for specifying lexical analyzer and draw a block schematic diagram of its functioning.
(c) What are problems encountered in recursive descent parsers? How are they eliminated?
(d) Define a context free grammar. Write a context free grammar to generate palindromes using the set of {a, b}.
(e) Write the syntax directed definition for constructing a syntax tree of an expression.
(f) Explain action item with suitable example.
(g) Distinguish between explicit and indirect control representation of three-address statements.
(h) Explain the process of code motion with example.

(8 × 5 = 40 marks)

2. (a) Consider the following while statement:
While A > B & A < = 2 * B - 5 do
A = A + B;
Write down the outputs generated at each phase of the compiler and briefly discuss how the outputs are generated.

Or

3. (a) Construct an LR parsing table for the following grammar:
(b) Construct a minimum-state DFA for the regular expression (a|b)*abb(a|b)*.

S → xAy|xy|xAz
A → a|b
B → c

Or

(b) Explain the predictive parsing algorithm.
(c) Write the rules for finding the first and follow elements for a grammar.

(8 marks)

(7 marks)

Turn over