D 32085 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION JUNE 2007

(New Scheme)

CS 2K 605/IT 2K 606-D—COMPILER DESIGN

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

I. (a) Compare and contrast static and dynamic storage allocation.

(b) Write notes on lexical analyser generators.

(c) Discuss transition diagram with an example.

(d) What is an ambiguous grammar ? How we can eliminate ambiguity from a grammar ?

(e) What is the significance of contex free grammar ? Explain with an example.

(f) Discuss dead code elimination in code optimization phase.

(g) What are code generators and code optimizers.

(h) Explain various error recovery techniques.

(8 × 5 = 40 marks)

Part B

II. (a) Design a DFA which will accept those words were the number of b's is divisible by 3. (7 marks)

(b) Discuss the role of Lexical analyser in a compiler. (8 marks)

Or

(c) Explain the design of Lexical analyser with an example. (8 marks)

(d) Distinguish between Compiler, Assembler and Interpreter. (7 marks)

III. (a) Explain bottom up parsing with an example. (9 marks)

(b) Discuss parser generators. (6 marks)

Or

(c) What are operator precedence parsing and error recovery mechanism. (7 marks)

(d) Generate operator precedence table for the given grammar

$E \rightarrow E\ A\ E$

$A \rightarrow + / * / id$

(8 marks)

Turn over

IV. (a) Discuss different intermediate code forms in intermediate code generation phase. (8 marks)

(b) Explain ambiguities involved in functions and array references. (7 marks)

Or

(c) What is a symbol table ? Discuss different data structures used for constructing symbol table. (8 marks)

(d) What is meant by block structured programming ? (7 marks)

V. (a) Briefly discuss the Global Optimization techniques. (8 marks)

(b) Explain an algorithm for allocation of registers. (7 marks)

Or

(c) Discuss all the intermediate steps in the code generation for the string $a + b * c + d * e * f$. (8 marks)

(d) What is code motion ? Give example. (7 marks)

[4 × 15 = 60 marks]