

Code No: RT31051

R13**SET - 1****III B. Tech I Semester Supplementary Examinations, May - 2016****COMPILER DESIGN**

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. Answering the question in **Part-A** is compulsory3. Answer any **THREE** Questions from **Part-B**

PART -A

- 1 a) Differentiate compiler and interpreter. [3M]
- b) Define left most derivation and right most derivation with example. [4M]
- c) Compare and contrast LR and LL Parsers. [4M]
- d) Differentiate synthesis and inherited translation. [4M]
- e) What are the issues to be considered during code generation? [4M]
- f) What is instruction scheduling? [3M]

PART -B

- 2 a) Write a LEX program that recognizes the tokens in PASCAL and use the LEX compiler to construct a lexical analyzer for PASCAL. [10M]
- b) Explain bootstrapping a compiler with suitable diagrams. [6M]
- 3 a) Test whether the grammar is LL (1) or not, and construct a predictive parsing table for following grammar: [8M]

$$S \rightarrow iEtSS_1 / a, S_1 \rightarrow eS / \epsilon, E \rightarrow b$$
- b) What is top down parsing? What are the problems in top down parsing? Explain each with suitable example. [8M]
- 4 a) What is shift reduce parser? Consider the following grammar: [6M]

$$E \rightarrow E + E, E \rightarrow E * E, E \rightarrow (E), E \rightarrow id$$
 Show the shift-reduce parser action for the string $id*(id+id)$.
- b) Construct SLR parsing table for the following grammar: [10M]

$$S \rightarrow L = R, S \rightarrow R, L \rightarrow *R, L \rightarrow id, R \rightarrow L$$
- 5 a) What is an intermediate code? Explain different types of intermediate codes forms and represent the following statement in different forms: [10M]

$$W = (A + B) - (C + D) + (A + B + C).$$
- b) Give the SDT scheme for desk calculator. [6M]
- 6 a) What are the contents of a symbol table? Explain in detail the symbol table organization for Block-Structured languages. [8M]
- b) Explain in detail about Stack allocation scheme. [8M]
- 7 a) What is the purpose of code optimization? Explain in detail loop optimization with example. [10M]
- b) Explain in detail inter procedural optimization. [6M]
