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 compulsory
3. Answer any **THREE** Questions from **Part-B**

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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: $S \rightarrow iEtSS_1 / a$, $S_1 \rightarrow eS / \varepsilon$, $E \rightarrow b$	[8M]
	b)	What s 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: $E \rightarrow E + E$, $E \rightarrow E * E$, $E \rightarrow (E)$, $E \rightarrow id$ Show the shift-reduce parser action for the string id*(id+id).	[6M]
	b)	Construct SLR parsing table for the following grammar: $S \rightarrow L = R$, $S \rightarrow R$, $L \rightarrow *R$, $L \rightarrow id$, $R \rightarrow L$	[10M]
5	a)	What is an intermediate code? Explain different types of intermediate codes forms and represent the following statement in different forms: $W = (A + B) – (C + D) + (A + B + C)$.	[10M]
	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]

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