Code No: R1631051 **R16** SET - 1

III B. Tech I Semester Supplementary Examinations, May - 2019

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. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

~~~~~~

PART –A

1.	a)	What is the role of compiler in bootstrapping operation?	[2M]
	b)	Write context free grammar for polish notation of arithmetic expressions.	[2M]
	c)	Construct parse tree and syntax tree for 4-6/3*5+7.	[2M]
	d)	Apply translation scheme to generate three-address code a<b or c<d.	[3M]
	e)	Write in detail about the sub-division of run-time memory.	[3M]
	f)	Copy propagation leads to dead-code elimination, justify this with example.	[2M]

PART -B

2.	a)	Write short notes on hierarchical and linear analysis operations.	[7M]
	b)	Regular expressions are important for lexical analysis? Explain the reason with examples.	[7M]
3.	a)	**G: S→ (L)|a L→ L,S|R, R→b** for the given grammar find LR(0) items.	[7M]
	b)	For the above grammar G construct LR parsers and explain how shift, reduce accept or reject operations are performed.	[7M]
4.	a)	Write a short note on error recovery with LR parsers. How it is different from LL parsers?	[7M]
	b)	List and explain the algorithmic steps to construct LALR parser for grammar **S→L=R|R L→ *R|id R→L.**	[7M]
5.	a)	Explain the role of type checking in error detection and recovery.	[7M]
	b)	Write various semantic routines used to construct abstract syntax tree with an example.	[7M]
6.	a)	Write pseudocode for finding sum of ‘n’ numbers. And identify basic blocks then construct the flow graph for it. Explain the rules used for this.	[7M]
	b)	How to access non-local data? Explain implication details with example.	[7M]
7.		Explain the following two classes of local machine independent transformations i) Structure preserving transformations ii) Algebraic transformations.	[14M]

*****
~~~~~~