Code No: RT31051 **R13** SET - 1

III B. Tech I Semester Supplementary Examinations, October/November - 2018

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)	Write the regular definition and transition diagram for identifiers and reserved words.	[3M]
	b)	Differentiate Parse tree and Syntax tree with an example.	[4M]
	c)	What is the significance of Operator precedence	[4M]
	d)	What is semantic rule? How to evaluate the semantic rules?	[4M]
	e)	Write a short note on peephole optimization.	[4M]
	f)	What is strength reduction? Give an example.	[3M]

PART -B

2	a)	Explain the role of assembler, compiler, loader and linker in the language processing system.	[8M]
	b)	Write about the following with respect to lexical analyzer. i) Relationship with regular expressions and regular definitions ii) Lexical errors.	[8M]
3	a)	Explain the structure of predictive parser. How to handle error in it?	[6M]
	b)	Construct the non recursive predictive parse table for the given grammar and check the acceptance of input string **abfcg** S→A A→aB/Ad B→bBC/f C→cg	[10M]
4	a)	Explain the working principle of CLR(1) parser and construct the parse table for the given grammar S→ L=R/R R→ L L→ *R/id	[10M]
	b)	Using the CLR (1) table constructed above check the acceptance of input string id**=id/id** and also explain the algorithm for this.	[6M]
5	a)	What is intermediate code? Translate the expression **(a+b)/(c+d)*(a+b/c)-d** into quadruples, triples and indirect triples.	[8M]
	b)	Write and explain the Syntax Directed definition for the grammar E→ E1+T/E1-T/T T→(E)/id/num.	[8M]
6	a)	Consider the C program and generate the code and Write different object code forms Main() { int i, a[10]; while (i<=10) a[i]=i*5; }	[8M]
	b)	What is Activation Record? Explain its usage in stack allocation strategy. How it is different from heap allocation?	[8M]
7		Explain the following machine independent optimization techniques.	
	a)	Common sub expression and dead code elimination	[6M]
	b)	Copy propagation, constant folding.	[5M]
	c)	Instruction scheduling.	[5M]

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