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

III B. Tech I Semester Supplementary Examinations, May - 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)	Explain the following: Lexeme, Token and pattern.	[3M]
	b)	What is ambiguity? How to eliminate it? Give example.	[3M]
	c)	Explain about error recovery in LR parser.	[4M]
	d)	Write SDTs for the Boolean expression grammar.	[4M]
	e)	Explain various parameter passing mechanisms.	[4M]
	f)	Discuss inter procedural optimization with example.	[4M]

PART -B

2	a)	What are different analysis phases of compiler? Explain the reasons for separation of lexical analysis from syntax analysis	[8M]
	b)	Write a lexical analyzer program to identify Strings, Sequences, Comments, Reserved words and identifiers.	[8M]
3	a)	"Top down parser is also considered as Left Most Derivation" Justify this with an example.	[6M]
	b)	Prove that the given grammar is LL(1) grammar $S \rightarrow aBDh$ $B \rightarrow cC$ $C \rightarrow bc/\epsilon$ $D \rightarrow EF$ $E \rightarrow g/\epsilon$ $F \rightarrow f/\epsilon$	[10M]
4	a)	Differentiate the following i) Sentence and sentential form ii) LR (0) and LR (1) items. ii) Action and GoTo functions	[8M]
	b)	Explain the algorithm to construct the LR(0) items and construct LR(0) items for the given grammar given in $A \rightarrow A+B/B$ $B \rightarrow B*D/D$ $D \rightarrow (A)/id/num$	[8M]
5	a)	What is dependency graph? Construct dependency graph for the expression a-4+c using syntax directed definition of $E \rightarrow TE1$ $E1 \rightarrow +TE1/-TE1/\epsilon$ $T \rightarrow (E)/id/num$	[8M]
	b)	Differentiate inherited and synthesized attributes with an example.	[8M]
6	a)	What is a leader of basic block? Write and explain the algorithm used to find leaders. Draw flow graph for matrix multiplication.	[8M]
	b)	Draw and explain the Runtime memory organization static storage allocation strategy with pros and cons.	[8M]
7	a)	Explain about the sources and criterions of code optimization as machine dependent and independent types.	[8M]
	b)	Write short notes on Function preserving optimization techniques.	[8M]

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