## B.E.(with Credits)-Regular-Semester 2012 - Information Technology Sem VIII IT801 - Compiler Design

P. Pag Time	ges : : Thr	2 ee Hours	<b>GUG/W/16/70</b> * 4 8 6 3 * Max. Marks :	<b>91</b> : 80
	Note	s: 1. 2. 3. 4. 5.	Same answer book must be used for all questions. All questions carry marks as indicated. Due credit will be given to neatness and adequate dimensions. Assume suitable data wherever necessary. Illustrate your answers wherever necessary with the help of neat sketches.	
1.	a)	With a n	eat diagram, explain various phases of compiler.	8
	b)	Explain	the role of lexical analyser. Also explain why lexical analyser called scanner.	8
			OR	
2.	a)	Describe i) ((a- ii) (a+	e precisely and design FA for the language denoted by following regular expression. +b) (a+b)*) a a (a+b)* b)* a (a+b) [(a+b) (a+b)]*	8
	b)	Explain	different compiler construction tools.	8
3.	a)	What is	the role of parser ? Explain error recovery methods of LR parsers.	8
	b)	Construct $S \rightarrow aA$	ct LL(1) parsing table for the following grammar. B   bA  ∈	8
		$A \rightarrow aA$	b ∣∈	
		$B \rightarrow bB$	s   c	
			OR	
4.		Conside $E \rightarrow E -$	r the following grammar. - T   T	16
		$T \rightarrow T *$	FIF	
		$F \rightarrow F^*$ construct	a b to the SLR parsing table for this grammar. Also parse the input $a * b + a$ .	
5.	a)	Write in	detail notes on type conversion using S-attributed defination with example.	8
	b)	Construe $x * y - 5$	ct the syntax tree for the expression $z + z$	8
			OR	

6. a) Give the translation scheme that convert infix to postfix form for the following grammar.8 Also generate the annotated parse tree for input string 2+6+1.

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	b)	What are different storage allocation strategies.	8				
7.	a)	Generate three-address code for the following switch statement. Switch (i+j) { Case 1 : $x = y + z$ Case 2 : $u = v + w$ default : $p = q + r$ }	8				
	b)	Following is a grammar increment and decrement operators $+ +$ and $$ $E \rightarrow E + E   + + E   E   E + +   E   id = E$ Give the semantic actions to generate an intermediate code	8				
		OR					
8.		Translate the following code segment into quadruples and triples: -	16				
		While (A <c and="" b<d)<br="">if A = 1 then C=C+1 else while A&lt;=D do A=A+2.</c>					
9.	a)	Explain various machine dependent code optimization techniques.	8				
	b)	Generate the target code for the three address code for the assignment statement. r=(x+y)*(x-z)+(x-z)	8				
OR							
10.		What is DAG. Explain its application.					
		i) Construct the DAG for the following basic block. D = B * C E = A + B					

- E = A + BB = B + CA = E D
- ii) What are the legal evaluation orders and names for the values of the nodes for the DAG of problem.
  - Assuming A, B and C are alive at the end of the basic block.
  - Assuming only A is alive at the end.

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