

Model Question Paper
6th Sem (Elective)
Compiler design CS664

Answer any five

- I a Explain different phases of a compiler with example. 10
- b With fig explain the role of lexical analyzer in compiler design. Also give reasons for separating analysis phase into lexical analysis and parsing 6+4
- II a Define left recursion? Eliminate left recursion from the following grammar?
 $E \rightarrow E+T/T$
 $T \rightarrow T*F/F$
 $F \rightarrow (E) /id$
Also obtain first and follow function for the above resulting grammar 10
- b Construct LL(1) grammar shown below
 $S \rightarrow i \text{ et } SS^1/a$
 $S^1 \rightarrow es / \epsilon$
 $E \rightarrow b$ 10
- III a What do you mean by handle pruning give example. Give an algorithm for constructing precedence functions. 3+7
- b Obtain set of canonical LR(0) items for the grammar.
 $S \rightarrow L= R, S \rightarrow R, L \rightarrow *R, L \rightarrow id, R \rightarrow L$ 6
- c Write a note on error recovery in LR parsing 4
- IV a Obtain directed acyclic graph for the expression
 $a + a^+ (a + a + a^+(a + a + a + a))$. Also give sequence of instruction for constructing the above dag. 2+4
- b Write a note on L-attributed definition 6
- c Give SDTS for arithmetic expression with +, * and - . Show annotated parse tree for the input $3 + 4 * 5$ 8
- V a Explain different storage allocation strategy ? 8
- b With example explain different parameter passing methods? 8
- c Explain the approaches to implement dynamic scope in lexical implementation of lexical scope 4
- VI a What are the methods for representing 3 address statement. Explain with an example 6

	b	Give annotated parse tree for $x:=A[y, z]$	6
	c	Obtain SD definition to produce 3 address for Booleans	8
VII	a	Explain the different issues involved in design of code generator	10
	b	Obtain 3 address code sequence for expression $d:=(a-b) + (a-c) + (a-c)$ also give code generated for each statement.	6
	c	Write a note on Back patching	4
VIII	a	Explain any 5 kinds of code optimization technique	10
	b	Explain with an example the tools used to recognize token and statement in a given programming language.	10