R18

ANURAG Engineering College
(An Autonomous Institution)
III B.Tech I Semester Regular/Supplementary Examinations, Dec–2023/Jan-2024
COMPILER DESIGN
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 Hours   Max.Marks:75

Section – A (Short Answer type questions)   (25 Marks)
Answer All Questions

		Course Outcome	B.T Level	Marks
1.	List out different phases of compiler	CO1	L1	2M
2.	Define bootstrapping	CO1	L1	3M
3.	Define Lexeme, Token and pattern	CO2	L1	2M
4.	Explain 4 tuple representation of Context free Grammar	CO2	L2	3M
5.	What is LR parser and list out different types of LR parsers	CO3	L1	2M
6.	What is Left Recursion? How to eliminate left recursion?	CO3	L2	3M
7.	Define inherited attribute with one example	CO4	L1	2M
8.	Develop three address code for a=b+c*d	CO4	L2	3M
9.	What is constant folding?	CO5	L1	2M
10.	Explain any one loop optimization technique	CO5	L2	3M

Section B (Essay Questions)
Answer all questions, each question carries equal marks.   (5 X 10M = 50M)

			Course Outcome	B.T Level	Marks
11.	A)	Explain the phases of compiler with example i := j*70+k+2. Where i, j and k are float variables.	CO1	L2	10M
		OR			
	B)	Construct syntax directed translation for evaluating expression.	CO1	L3	10M
12.	A)	Explain input buffering schemes in lexical analysis.	CO2	L2	10M
		OR			
	B)	Construct CFG to accept palindromes over alphabets a,b. check the acceptance of the string aabaa and abab.	CO2	L3	10M
13.	A)	State and explain the rules used to compute first and follow. Functions? Compute first and follow of E, T, and F symbols in the below grammar. E-->E+T|T T-->T*F|F F-->F*|a|b.	CO3	L3	10M
		OR			
	B)	construct LR(0) items for E-->E+T|T T-->T*F|F F->a	CO3	L3	10M

14. A) What is an intermediate code? Explain different types of intermediate codes forms and represent the following. statement in different forms: W = (A+B) – (C+D) + (A + B + C).	CO4	L2	10M

<div align="center">**OR**</div>

B) Explain SDD and
For the grammar below:
$E \rightarrow E + T \mid T$
$T \rightarrow num.num \mid num$
Give an SDD to determine the type of each term T and expression E.

CO4   L2   10M

15. A) Explain the issues in code generation.   CO5   L2   10M

<div align="center">**OR**</div>

B) Explain in detail about peephole optimization techniques.   CO5   L2   10M