Question Paper Code: R18A31CS03

R18

ANURAG Engineering College

(An Autonomous Institution)

III B.Tech I Semester Supplementary Examinations, June/July – 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 the phases of compilation.	CO1	L1	2M
2.	What are the applications of compiler technology?	CO1	L1	3M
3.	Define Input Buffering.	CO2	L2	2M
4.	What do you know about context free grammar?	CO2	L1	3M
5.	Define backtracking.	CO3	L2	2M
6.	Define First ( ) and Follow ( ).	CO3	L2	3M
7.	List the applications of SDT.	CO4	L1	2M
8.	What are the different intermediate code forms?	CO4	L1	3M
9.	Write about peephole optimization?	CO5	L2	2M
10.	Differentiate loop and local optimization.	CO5	L2	3M

Section-B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 X 10M = 50M)**

11. A)	Analyse the design & implement a software system for backend of the compiler to deal with different translators.	CO1	L3	10M
	OR			
B)	Describe the bootstrapping in a compiler?	CO1	L3	10M
12. A)	i) Explain the input buffer scheme for scanning the source program.	CO2	L3	5M
	ii) How can Sentinels improve its performance? Describe in detail.			5M
	OR			
B)	Explain, in detail, lexical analyzer generator-LEX.	CO2	L3	10M
13. A)	i) What is recursive descent parser?	CO3	L3	3M
	ii) Construct recursive descent parser for the following grammar.			7M
	$E \rightarrow E + T \mid T$			
	$T \rightarrow TF \mid F$			
	$F \rightarrow F^* \mid a \mid b$			
	OR			
B)	Construct SLR parsing table for the following grammar.	CO3	L3	10M
	$S \rightarrow AS \mid b$			
	$A \rightarrow SA \mid a$			
14. A)	Write short notes on the following:	CO4	L3	10M
	i) S-attributed definitions. ii) L-attributed definitions.			
	iii) Dependency graph.			
	OR			

B)	What is a type expression? Explain the equivalence of type expressions with appropriate examples.	CO4	L3	10M
15. A)	What is the various primary structure-Preserving transformations on basic blocks? Explain each of them in detail.	CO5	L3	10M
	OR			
B)	Explain natural loops and inner loops of a flow graph with an example.	CO5	L3	10M