SET-II

HT NO: 7 R

THE PARTY OF

CMR TECHNICAL CAMPUS

UGC AUTONOMOUS

B. Tech. VI Semester Regular End Examinations, May-2023

Compiler Design

Common to CSE, IT, CSM&CSD

Time: 3 Hours

Max. Marks: 70

Note

- i. This Question paper contains Part- A and Part- B.
- ii. All the Questions in Part A are to be answered compulsorily.
- iii. All Questions from Part B are to be answered with internal choice among them.

PART-A

 $10 \times 02 = 20 \text{ Marks}$

			Marks	CO	BL
1.	a b	Define the terms Language Translator and compiler Define regular expression. Give example.	2 2	CO1 CO1	L1 L1
	c d	What is Context-Free Grammar? What is ambiguous Grammar? Give example	2 2	CO2 CO2	L1 L1
	e f	Explain about handle pruning? Define a syntax-directed translation?	2 2	CO3 CO3	L1 L1
	g h	What are the sub problems in register allocation strategies? Write the usage of reference counting garbage collector	2 2	CO4 CO4	L1 L1
	i j	What is dataflow Analysis? What is meant by Dead Code Elimination	2 2	CO5 CO5	L1 L1

PART-B

 $5 \times 10 = 50 \text{ Marks}$

			Marks	CO	BL
2.	a b	Explain Role of lexical Analyzer Explain different phases of Compiler with an illustrative	5 5	CO1	L2 L2
	U	example. OR	_	001	
3	а	What are the characteristics of Compiler Construction tools? Explain how Compiler Construction tools help in implementation of various phases of Compiler?	6	COI	L <i>2</i>
	b	Differentiate call-by-value and call-by-reference parameter passing mechanisms with suitable examples.	4	CO1	L2

4	а	Construct Predicative parser for the following grammar. $E \rightarrow E+T/T$ $T \rightarrow TF/F$ $F \rightarrow F^*/a/b$	5	C	
	ь	Check whether the following grammar is SLR (1) or not. Explain your answer with Reasons. $S \rightarrow L=R$, $S \rightarrow R$, $L \rightarrow *R$, $L \rightarrow id$, $R \rightarrow L$	5	CO2	Ī2
5	a	OR Consider the following grammar $S \rightarrow (L)/a$ L $\rightarrow L,S/S$ find FIRST and FOLLOW	8	CO2	L2
	Ъ	Mention the types of LR parser.	2	CO2	Li
6	а	What do you mean by attributed grammars? Discuss the translation scheme for Converting an infix expression to its equivalent postfix form.	5	CO3	L1
	b	Explain various storage allocation strategies with examples. OR	5	CO3	L2
7	a	Construct a quadruple, triples for the following expression: a +a*(b-c)+(b-c)*d?	8	CO3	L2
	b	Define type expression with an example?	2	CO3	L1
8	a b	Explain Lazy-code motion problem with an algorithm Explain in detail about Specification of a simple type checker.	5 5	CO4 CO4	L2 L2
9	a	OR OR			
,	a	Discuss about the following: a) Copy Propagation b) Dead code Elimination	5	CO4	L3
	b	Explain various issues in design Code Generator.	5	CO4	L2
10	a	What is DAG and flow graph? Explain their role in compilation process	5	CO5	L1
	Ъ	Explain data-flow analysis of structural programs OR	5	CO5	L2
	a b	Give an example to show how DAG is used for register allocation Explain data-flow schemas on basic blocks with flow graphs	5 5	CO5 CO5	L2 L2

CO : Course Outcomes

BL : Bloom's Taxonomy Levels L1: Remembering L 2: Understanding

L 3 : Applying

L 4 : Analysing

L 5 : Evaluating