R20 Regulation *Subject code: 3P5HD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Regular/Supplementary Examinations, February 2024

COMPILER DESIGN

(CSE (DATA SCIENCE))

Maximum Marks: 70 Date: 22.02.2024 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

	Part-A	CO	Bloom Tx
All the following questions carry equal marks (10x2M=20 Marks)			
1	What is input buffering? How is input buffering implemented?	I	L1
2	Define Regular Expression with an example?	I	L1
3	List the rules for computing FOLLOW SET.	II	L2
4	Define Top Down parser	II	L1
5	What is type expression?	III	L1
6	What does a semantic analysis do?	III	L2
7	What is activation record?	IV	L1
8	How can you identify the leader in a Basic block?	IV	L3
9	Explain dead code elimination and reduction in strength?	V	L2
10	Which graph is used for identifying the common sub expression in an expression?	V	L3
	Part-B		
Answer All the following questions. (5X10M=50Marks)			Bloom Tx level
11	A. Explain the concept of bootstrapping with example. 4M B. Explain in detail about Lexical Analyser 6M	I I	L2 L2
	OR		
12	Explain the various phases of a compiler with an illustrative example. 10M	I	L2
13	Construct predictive parsing table for the following grammar. 10M $S \rightarrow (L) \mid a$ $L \rightarrow L, S \mid S$	II	L5
	OR		
14	Find the LR (0) set of items for the following grammar. Describe state diagram and construct parse table of that given grammar. 10M $S \rightarrow CC$ $C \rightarrow cC \mid d$	II	L4
15	Give Syntax Directed Translation Scheme for simple desk calculator. 10M	III	L5

	OR		
16	Translate the following expression: (a + b) * (c + d) + (a + b + c) into a) Quadruples b) Triples c) Indirect triples (3+3+4)	III	L5
17	What is symbol table? Discuss various ways to organizing symbol table. 10M	IV	L3
	OR		
18	Explain various method to handle peephole optimization? 10M	IV	L2
19	Explain in detail about machine independent code optimization techniques. 10M	V	L2
	OR		
20	Explain the principle sources of optimization. 10M	V	L3