R20 Regulation *Subject code:3P5HD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, May 2025

COMPILER DESIGN

(CSE(DS))

Maximum Marks: 70 Date: 24.06.2025 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

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	BTL
1	Define compiler.	2M	1	L1
2	What is meant by semantic analysis?	2M	1	L1
3	Define parser.	2M	2	L1
4	What is meant by viable prefixes?	2M	2	L1
5	Define back patching.	2M	3	L1
6	Write the 3-addr code for the statements **a =b*-c + b*-c?**	2M	3	L1
7	What is dynamic scoping?	2M	4	L1
8	Define DAG.	2M	4	L1
9	What is meant by Dead Code?	2M	5	L1
10	Define peephole optimization.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	What are the different phases of compiler? Explain the phases in detail.	10M	1	L2
	OR			
12	Convert the RE **(a|b)*abb** into NFA-ϵ and find the equivalent minimum state DFA.	10M	1	L2
13	Consider the grammar. **E → E + T | T , T → T * F | F, F → (E) | id** Construct CLR parsing table for the above grammar. Write the moves of the CLR parser on **id * id + id.**	10M	2	L2
	OR			
14	Write an algorithm for constructing CLR parsing table Following Grammar **S→CC, C→aC | d**	10M	2	L2
15	What is a three-address code? Mention its types. How would you implement the three address statements? Explain with examples.	10M	3	L2
	OR			
16	What is type checker? Explain the specification of a simple type checker.	10M	3	L2
17	Explain different methods for register allocation and assignment.	10M	4	L2

	OR			
18	Explain in detail about the code generator. Give an example.	10M	4	L2
19	Explain in detail about loop optimization techniques with examples.	10M	5	L2
	OR			
20	What is a Flow Graph? Explain how a given program can be converted in to a Flow graph.	10M	5	L2