



Regulation R20

Subject code: 3P5HD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Regular Examinations, January 2023

COMPILER DESIGN

(CSE (DS))

Maximum Marks: 70

Date: 23.01.2023 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 which carries 10M.
 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)

- 1 Define Cross Compiler.
- 2 What are the differences between a compiler and an interpreter?
- 3 List the rules for computing FOLLOW SET.
- 4 Construct the LR(0) items for the "dangling-else" grammar.
- 5 What does a semantic analysis do?
- 6 Write the differences between synthesized attributes and inherited attributes.
- 7 Write an algorithm for constructing a basic block.
- 8 Define various possible outputs of the code generator.
- 9 Write various code optimization techniques.
- 10 List the Loops in Flow Graphs.

Part-B

Answer All the following questions.

(10MX 5=50Marks)

- 11 Write a LEX program for a simple desktop calculator. [10]

OR

- 12 Explain the various phases of a compiler with an illustrative example. [10]

- 13 Construct predictive parsing table for the following grammar. [10]

$S \rightarrow (L) \mid a$
 $L \rightarrow L, S \mid S$

OR

- 14 Find the LR (0) set of items for the following grammar. Describe state diagram and construct parse table of that [10]

$S \rightarrow CC$
 $C \rightarrow cC \mid d$

- 15 Give syntax directed translation scheme for simple desk circulator. [10]

OR

- 16 Translate the following expression:

$(a + b) * (c + d) + (a + b + c)$ into

a) Quadruples b) Triples c) Indirect triples

[3+3+4]

- 17 What is symbol table? Discuss various ways to organizing symbol table. [10]
- OR
- 18 Generate the code for the following expression: $x = (a + b) - ((c + d) - e)$. Also Compute its cost [10]
- 19 Explain in detail about machine independent code optimization techniques. [10]
- OR
- 20 Illustrate loop optimization with suitable example. [10]