Regulation: R18 *Subject code: 2P6FC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, June/July 2023

COMPILER DESIGN

(Information Technology)

Maximum Marks: 70 Date:27.06.2023 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 What are the functions of pre-processor?

2 Define the following terms: a) Lexeme b) Token

3 Differentiate between top down parsers and bottom up parsers.

4 Define ambiguous Grammer.

5 What are the various types of intermediate code representation?

6 Write a note on the specification of a simple type checker.

7 What are Abstract Syntax trees?

8 Define address descriptor and register descriptor

9 What are induction variables? What is induction variable elimination?

10 What is machine independent code optimization?

Part-B

Answer All the following questions. (10MX 5=50Marks)

11 Explain the various phases of a compiler in detail. Also write down the output for the following expression: position: =initial + rate * 60 [10]

OR

12 Construct an FA equivalent to the regular expression. [10]
(0+1)*(00+11)(0+1)*

13 Construct SLR parse table for [10]
S->L=R/R
R->L
L->*R/id

OR

14 State and explain the rules to compute first and follow functions. [10]
E->E+T/T
T->T*F/F
F->F*/a/b

15 What is type checker? Explain the specification of a simple type checker. [10]

OR

16 Translate the following expression:
(a + b) * (c + d) + (a + b + c) into [5+5]
a) Quadruples b) Triples

17 Discuss about the following: [4+3+3]
a) Copy Propagation
b) Dead code Elimination
c) Code motion.

OR

18 Explain Lazy-code motion problem with an algorithm. [10]

19 Explain data-flow schemas on basic blocks with flow graphs. [10]

OR

20 Explain in brief about different Principal sources of optimization techniques with suitable examples. [10]