



R18 Regulation

Subject code: 2P6EA & 2P6FC

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

B.Tech VI Semester Supplementary Examinations, January 2023

COMPILER DESIGN
(Common to CSE & IT)

Maximum Marks: 70

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)

- 1 Define an ambiguous grammar.
- 2 Define tokens, patterns and lexemes.
- 3 Define basic block.
- 4 What is constant folding
- 5 What are the properties of optimizing compiler.
- 6 List out the different storage allocation strategies.
- 7 Define bottom up parser.
- 8 Draw syntax tree for the arithmetic expressions $a*(b+c) - d/2$.
- 9 Define flow graph.
- 10 What is stack allocation in compiler design

Part-B

Answer All the following questions.

(10M X 5=50Marks)

- 11 Discuss the various phases of compiler and trace the program segment $c=a+b=4$ for all phases.
[10]

OR

- 12 Discuss about the input buffering scheme in lexical analyzer. [10]
- 13 Construct SLR construction table the following grammar: [10]

$E \rightarrow E+T$

$E \rightarrow T$

$T \rightarrow T * F$

$T \rightarrow F$

$F \rightarrow (E)$

$F \rightarrow id$

OR

- 14 Find LALR for the given grammar and parse the sentence $(a+b)^*$
 $E \rightarrow E+T \mid T, T \rightarrow T * F \mid F, F \rightarrow (E) \mid id$ [10]
- 15 What is type checker? Explain the specification of a simple type checker. [10]
OR
- 16 Explain and compare in detail the various implementation forms of three address code. [10]
- 17 Discuss the various issues in code generation with examples. [10]
OR
- 18 Define a DAG. Construct a DAG and write the sequence of instructions for the expression $a+a*(b-c)+(b-c)*d$. [10]
- 19 Discuss in detail the process of optimization of basic blocks. Give an example. [10]
OR
- 20 What is data flow analysis. Explain data flow analysis with examples. [10]