



R18 Regulation

Subject code: 2P6EA

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

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

Compiler Design
(Computer Science and Engineering)

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.
 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 List out the various compiler construction tools.
- 2 What are the cousins of compiler.
- 3 Define augmented grammar
- 4 What is code motion
- 5 What is coercion.
- 6 Write the quadruple notation for the following expression
 $(x + y) * (y + z) + (x + y + z)$.
- 7 What is heap storage allocation.
- 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

Answer All the following questions.

(10M X 5=50Marks)

- 11 Explain in detail the process of compilation. Illustrate the output of each phase of compilation for the input $a = (b+c) * (b+c) * 2$ [10]
- OR
- 12 Consider the following grammar. [10]
 $S \rightarrow AS | b, A \rightarrow SA | a$
Construct the SLR parse table for the grammar. Show the actions of the parser for the input string abab.
 - 13 a) Define the following terms : [2+3]
i) Compiler ii) Interpreter
b) What are the issues in Lexical analysis. [5]

OR

- 14 a) What is an ambiguous grammar?. Is the following grammar ambiguous? Prove $E \rightarrow E + E | E * E | (E) | id$. [5]
b) Draw NFA for the regular expression ab^*/ab [5]
- 15 How would you convert the following into intermediate code. [5+5]
(i) Assignments statements.
(ii) Case statements.

OR

- 16 Explain Syntax directed definition and types of SDDs with examples. [10]
- 17 What is an activation record? Explain how it is related with run time storage organization . [10]

OR

- 18 Write Principle sources of optimization. [10]
- 19 Write global common subexpression elimination algorithm with an example. [10]

OR

- 20 What is data flow analysis. Explain data flow analysis with examples. [10]