



R20 Regulation *Subject code: 3P5HD*
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
 (Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech V Semester Supplementary Examinations, July 2024
COMPILER DESIGN
 (CSE (DATA SCIENCE))

Maximum Marks: 70

Date: 26.07.2024 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		CO	Bloom Tx
All the following questions carry equal marks (10X2M=20 Marks)			
1	What are the differences between a compiler and an interpreter?	I	L2
2	Define Boot strapping.	I	L1
3	What is Context free grammar?	II	L2
4	Give the specification of the YACC parser generators.	II	L2
5	How to check structural equivalence of two type expressions?	III	L3
6	Write the method to find evaluation order for SDD's?	III	L2
7	How to allocate registers to instruction?	IV	L3
8	Write an algorithm for constructing a basic blocks.	IV	L2
9	Which graph is used for identifying the common sub expression in an expression?	V	L3
10	What is common sub -expression elimination? Explain.	V	L2
Part-B			Bloom Tx level
Answer All the following questions. (5X10M=50Marks)			
11	A. Explain the procedure to convert regular expression to Finite automata.5M B. Explain various phases in the construction of compiler with a neat sketch.5M	I II	L4 L2
OR			
12	A. What is the functionality of preprocessing and input buffering? 5M B. Explain the role Lexical Analyzer and issues of Lexical Analyzer in compiler design. 5M	I I	L2 L2
13	A. Differentiate between Top down and bottom up parsing techniques. 5M B. Construct a Predictive parsing table for the Grammar: 5M $E \rightarrow E+T/T$ $T \rightarrow T*F/F$ $F \rightarrow (E)/id$	II II	L3 L5
OR			
14	Construct the LR Parsing table for the following grammar: 10M $E \rightarrow E + T T$ $T \rightarrow T * F F$ $F \rightarrow (E)/id$	II	L5

15	A. Describe the syntax directed translation procedure for assignment statements with integers and mixed types and explain. 5M B. Write the differences between L-Attributed and S-Attributed SDD's. 5M	III	L3
OR			
16	A. Write the short note on: (2M+2M+2M) i) Abstract syntax tree ii) Polish notation iii) Three address code B. What is type checker? Explain the specification of a simple type checker.4M	III	L2 L3
17	Explain various storage allocation strategies with its merits and demerits. 10M	IV	L3
OR			
18	A. What is DAG? Construct DAG for the following Basic block. 5M D: = B*C; E:= A+B; B:=B+C; A:=E-D; B. Describe the issues in the design of Code Generator. 5M	IV IV	L4 L3
19	A. Explain in brief about different Principal sources of optimization techniques with suitable examples. 5M B. Explain about machine dependent code optimization. 5M	V V	L3 L2
OR			
20	A. Explain constant propagation with example. 5M B. Explain redundancy elimination techniques. 5M	V V	L2 L2