



**B.Tech V Semester Regular/Supplementary Examinations, February 2024**  
**COMPILER DESIGN**  
(CSE)

**Maximum Marks: 70**

**Date: 22.02.2024 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	Explain the Structure of lex program.	CO 1	U
2	List out any four properties of compiler.	CO 1	R
3	Differentiate Top Down parsing and Bottom Up parsing?	CO 2	U
4	Eliminate the left recursion for the grammar. $S \rightarrow Aa \mid b$ $A \rightarrow Ac \mid Sd \mid \epsilon$	CO 2	Ap
5	Define Syntax directed definition of a simple desk calculator.	CO 3	R
6	List out the two rules for type checking.	CO 3	R
7	What is heap allocation?	CO 4	R
8	How the activation record is pushed onto the stack.	CO 4	U
9	Illustrate the concepts of copy propagation.	CO 5	U
10	Explain the uses of machine independent.	CO 5	U
Part-B			
Answer All the following questions. (5X10M=50Marks)			Bloom Tx level
11	Discuss in detail about phases of compiler with an example? [10]	CO 1	U
OR			
12	Prove that the following two regular expressions are equivalent by showing that the minimum state DFA's are same : a) $(a/b)^*$ b) $(a^*/b^*)^*$ [5+5]	CO 1	U
13	a) What is CFG .Explain in detail about the Context-Free Grammar b) Construct Stack implementation of shift reduce parsing for the grammar $E \rightarrow E+E$ $E \rightarrow E^*E$ $E \rightarrow (E)$ $E \rightarrow id$	CO 2	An

	and the input string $id1 + id2 * id3$	[5+5]		
	OR			
14	Analyze the LR parsing algorithm with a suitable example and explain in detail.	[10 Mark]	CO 2	An
15	Identify in detail about the various instructions forms of three address instruction with suitable examples.	[10 Mark]	CO 3	Ap
	OR			
16	Generate an intermediate code for the following code segment with the required syntax-directed translation scheme. if ( a > b) x = a + b else x = a - b	[10 Mark]	CO 3	Ap
17	a) Illustrate the storage organization memory in the perspective of compiler writer with neat diagram. b) Compare static versus dynamic memory allocation.	[5+5]	CO 4	U
	OR			
18	a) Explain in detail about the various issues in code generation with examples. b) Write short note on Peephole Optimization and its usage.	[5+5]	CO 4	U
19	a) Explain briefly about the principal sources of optimization. b) Discuss about the machine dependent and independent techniques.	[5+5]	CO 5	U
	OR			
20	a) Summarize in detail about the dataflow analysis of available expression with suitable example. b) What is the usage of Loops in Flow Graphs?	[5+5]	CO 5	U