GUJARAT TECHNOLOGICAL UNIVERSITY
M.SC(CS)- INTEGRATED– SEMESTER VI- EXAMINATION –SUMMER-2024

Subject Code: 1360304   **Date: 03/05/2024**
Subject Name: Compiler Design
Time: 10:30 AM TO 01:00 PM   **Total Marks: 70**
Instructions:
   1. Attempt all questions.
   2. Make Suitable assumptions wherever necessary.
   3. Figures to the right indicate full marks.
   4. Use of simple calculators and non-programmable scientific calculators are permitted.

Q.1	**(a)**	What is Language Processor?	**03**
	(b)	Define how lexical analysis works; Give one example of Lexical Analysis, Tokens, and Non-Tokens.	**04**
	(c)	Explain a rule of Left factoring a grammar and give Example.	**07**
Q.2	**(a)**	What is Ambiguous Grammar?	**03**
	(b)	Define following terms: i. Compiler ii. Interpreter iii.Token	**04**
	(c)	Explain a rule of Left factoring a grammar and give Example.	**07**

OR

	(c)	Draw the DFA for the regular expression (a|b)*abb using set construction method only.	**07**
Q.3	**(a)**	Write difference between interpreter and complier	**03**
	(b)	Explain role of lexical analyzer.	**04**
	(c)	What is Finite Automata, Explain two types of FA with example.	**07**

OR

Q.3	**(a)**	What is Simple Code Generator?	**03**
	(b)	Explain first and follow in complier design.	**04**
	(c)	What is Ambiguous Grammar? Explain using any one example.	**07**
Q.4	**(a)**	Explain about Syntax-Directed Definitions.	**03**
	(b)	What is Ambiguous Grammar?	**04**
	(c)	Explain LL(1) Grammar using any one example.	**07**

OR

Q.4	**(a)**	Explain basic blocks for code generation.	**03**
	(b)	What is Recursive precedence parser explains in details?	**04**
	(c)	Is the following grammar LL(1) ? S→ aABbCD | ε A→ ASd | ε B→ Sac| hC | ε C→ Sf |Cg D→ aBD | ε	**07**
Q.5	**(a)**	What is complier, List Phases of complier and explain any one layer	**03**
	(b)	Explain the importance of error detection and recovery mechanisms in compiler design.	**04**
	(c)	Explain components of error detection and recovery.	**07**

OR

Q.5	**(a)**	Create Syntax Tree for the string a * (b + c) – d /2.	**03**
	(b)	What are run time environments? Explain source language issues.	**04**
	(c)	Explain SLR(1) Grammar using any one example.	**07**