

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024****Subject Code:3160715****Date:05-12-2024****Subject Name:System Software****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Explain semantic gap, specification gap and execution gap.	03
	(b) Explain the various tasks performed during analysis and synthesis phases of the assembler.	04
	(c) List various phases of Language Processor. Explain any one phase in detail.	07
Q.2	(a) Describe ambiguous grammar with suitable example.	03
	(b) Explain Left recursion in brief and remove left recursion from the following grammar: S -> A A -> aB / Ad B -> bBC / f C -> g	04
	(c) Explain various Assembler directives with suitable example.	07
OR		
(c)	Describe following data structures: OPTAB, SYMTAB, LITAB and POOLTAB.	07
Q.3	(a) Define: Parse tree, Syntax tree, DAG	03
	(b) Differentiate between single pass Assembler and 2-pass Assembler.	04
	(c) Explain recursive descent parsing algorithm with example.	07
OR		
Q.3	(a) Define: Token, Lexeme and Pattern	03
	(b) Construct LL(1) parsing table for following grammar. S -> iCtSeS iCtS a C -> b	04
	(c) Obtain minimized DFA for the following regular expression: aa*bc*#	07
Q.4	(a) Explain handle pruning with respect to the bottom up parsing.	03
	(b) Explain macro preprocessor in brief.	04
	(c) What is intermediate code? Explain types of intermediate code in compilers.	07
OR		
Q.4	(a) Define: Subroutine, DEFTAB, ARGTAB	03
	(b) Explain basic structure of a LEX program.	04
	(c) Define macro in the context of programming language. Explain the structure of a macro definition.	07

- Q.5** (a) Enlist different loading schemes. **03**
(b) Describe Absolute loader in brief. **04**
(c) Explain how relocation and linking is performed. **07**
- OR**
- Q.5** (a) Enlist the languages using interpreter. **03**
(b) Describe the classification of Debuggers. **04**
(c) Define: Interpreter, Explain the merits and demerits of interpretation **07**
