

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER- V EXAMINATION-SUMMER 2023

Subject Code: 2150708

Date: 22/06/2023

Subject Name: System Programming

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) Define following terms. 1. Assembler 2. Macro 3. Compiler	03
	(b) Discuss procedure oriented and problem oriented languages.	04
	(c) Discuss in details. 1. Program Translation 2. Program Interpretation	07
Q.2	(a) Define following terms. 1. Execution Gap 2. Language Translator 3. Language Migrator	03
	(b) Explain assembly language statements.	04
	(c) What do you mean by Forward Reference? Explain How it can be solved using one pass assembler with an example?	07
OR		
	(c) List and explain data structures used in PASS-1 of an assembler.	07
Q.3	(a) Explain Expansion time variable and its types.	03
	(b) Discuss the significance of LITAB and POOLTAB in two pass assembler.	04
	(c) What do you mean of Nested macro? Explain it with example for its expansion.	07
OR		
Q.3	(a) Explain Keyword Parameters in Macro.	03
	(b) Discuss the various types of MACRO.	04
	(c) Explain advanced facilities provided by MACRO.	07
Q.4	(a) Define Linker and Loader.	03
	(b) Explain absolute loader.	04
	(c) What is program relocation? How it can be performed by linker?	07
OR		
Q.4	(a) What is relocatable and self-relocating programs	03
	(b) Discuss Compile and Go loader.	04
	(c) What is Linking? How it can be performed by linker? Explain it with example.	07
Q.5	(a) What do you mean by an ambiguous grammar? Discuss it with simple example.	03

- (b) Find FIRST and FOLLOW for given Grammar. 04
E → TE'
E' → +TE' | ε
T → FT'
T' → *FT' | ε
F → (E) | id

- (c) Discuss various phases of Compiler. 07

OR

- Q.5** (a) List and explain various types of grammar. 03

- (b) What is operator grammar? Show precedence table for following operators. 04

*, +, -, /, \$, id

- (c) Consider the grammar 07

E → E – E

E → E * E

E → id

Perform Shift-Reduce parsing of the input string
“id1-id2*id3”
