Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V(NEW) EXAMINATION – SUMMER 2022

Subject Code:2150708 Date:20/06/2022

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)**	What is the difference between System Software and Application software?	**03**
	(b)	Define following: Semantic gap, Execution gap, System Software, Handle	**04**
	(c)	Explain Life cycle of source program with neat sketch.	**07**
Q.2	**(a)**	Define Assembler. List out tasks performed during different phase of assembler.	**03**
	(b)	Difference between one pass and two pass assembler.	**04**
	(c)	List out various assembler directives. Explain any three in detail.	**07**
		OR	
	(c)	Compare and contrast variant-I & II of the intermediate code for imperative statements in assembler.	**07**
Q.3	**(a)**	Explain the term self-relocating program.	**03**
	(b)	Explain positional parameter and keyword parameter with example.	**04**
	(c)	Explain Design of Macro Preprocessor in detail.	**07**
		OR	
Q.3	**(a)**	Explain Nested macro calls with suitable example.	**03**
	(b)	Explain Macro prototype & model statement with the help of example.	**04**
	(c)	What are the advanced macro programming facilitates? Explain with example.	**07**
Q.4	**(a)**	Differentiate Linker and Loader.	**03**
	(b)	Differentiate Top Down parser and Bottom Up parser.	**04**
	(c)	What is overlay? Explain the execution of an overlay structured program.	**07**
		OR	
Q.4	**(a)**	What is Loader? Enlist basic functions of loader.	**03**
	(b)	List and explain various types of grammar.	**04**
	(c)	What is program relocation? How relocation is performed by linker? Explain with example.	**07**
Q.5	**(a)**	What is Code optimization? Explain any one Code optimization technique.	**03**
	(b)	Differentiate stack and heap allocation of memory.	**04**
	(c)	Consider the grammar E → E-E E → E*E E → id Perform Shift-Reduce parsing of the input string “id1-id2*id3”	**07**

OR

Q.5	**(a)**	Differentiate Compiler and Interpreter.	**03**
	(b)	Draw the syntax tree and DAG for the input string: x = -a*b + -a*b	**04**
	(c)	Explain triple, quadruple and indirect triples representation with example.	**07**

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