Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– III EXAMINATION – WINTER 2019

Subject Code: 2630005 Date: 24/12/2019

Subject Name: System Software

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.**

Q.1	**(a)**	Define the following terms. 1. System Software 2. Forward Reference 3. Language Processor 4. Translator 5. Binding 6. Expression Tree 7. Macro	**07**
	(b)	1. Explain the facilities provided by Debug monitors. 2. Differentiate between Search data structure and allocation data structure.	**04** **03**
Q.2	**(a)**	Write a short account on the front end and back end processing of a toy compiler.	**07**
	(b)	1. Explain classification of grammar. 2. Compare Variant-I and Variant-II.	**04** **03**
		OR	
	(b)	List and explain all data structures used in Pass-I of an assembler.	**07**
Q.3	**(a)**	Explain ORIGIN, EQU and LTORG assembler directives in detail.	**07**
	(b)	Discuss different types parameters used in macro with example.	**07**
		OR	
Q.3	**(a)**	Explain data structure used for Macro processing.	**07**
	(b)	Explain Pass II of the Assembler algorithm.	**07**
Q.4	**(a)**	List and explain pass-I algorithm of Macro preprocessor.	**07**
	(b)	1. Explain pure and impure interpreter. 2. Differentiate top-down parsing and bottom-up parsing.	**03** **04**
		OR	
Q.4	**(a)**	Write a short note on “Code Optimization”.	**07**
	(b)	1. Explain static and dynamic memory allocation. 2. Write algorithm of Operator Precedence parsing and explain it?	**03** **04**
Q.5	**(a)**	Explain an algorithm for pass 1 of linker.	**07**
	(b)	1. Write short note on Self-relocatable programs. 2. Explain terms: Linked origin, Translated origin, Load time address.	**04** **03**
		OR	

Q.5 **(a)** Generate the parser table for an LL(1) parser for following Grammar using FIRST and FOLLOW technique. **07**

E = TE’

E’ = -TE’| ε

T = VT’

T’ = /VT’| ε

V = <id>

And also give the sequence of prediction made by parser for the source string like
|- <id> / <id> - <id>-|

(b) 1. Write a short note on Object Module. **04**
2. What are overlays? **03**

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