GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER – III• EXAMINATION – SUMMER 2018

Subject Code: 2630005   **Date: 25-May-2018**

Subject Name: System Software (SS)

Time: 02.30 pm to 5.00 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		Answer the following:	**14**
		1. Define Language processor	
		2. Define Compiler	
		3. List the spectrum of language processors	
		4. Define Interpreter	
		5. Define Abstract syntax tree	
		6. Define Token	
		7. Give the structure of symbol table.	
Q.2	**(a)**	(i) List the various assembly statements. Also give their syntax and support your answer with a suitable example.	**04**
		(ii) What is a regular expression? Write a regular expression for validating identifier.	**03**
	(b)	Explain the back end of the toy compiler with suitable example.	**07**
		OR	
	(b)	Explain the front end of the toy compiler with suitable example.	**07**
Q.3	**(a)**	Give the stage wise parsing for the string: <id> * <id> + <id> using operator precedence parser.	**07**
	(b)	Compare:	**07**
		1. Variant I and Variant II	
		2. Declare constant and Literals	
		OR	
Q.3	**(a)**	1. Explain forward reference with suitable example.	**07**
		2. Explain the following terms:	
		a. AGO statement	
		b. AIF statement	
		c. Sequencing symbol	
	(b)	1. Explain the advanced assembler directives in details.	**03**
		2. Explain derivation and reduction with suitable example.	**04**
Q.4	**(a)**	Explain the components of the object module.	**07**
	(b)	How do nested macros work? Consider two macros one within the other and explain its working.	**07**
		OR	
Q.4	**(a)**	Explain accessing local and non-local variables in block structured language.	**07**
Q.4	**(b)**	What data structures are used for processing a macro? Briefly explain each with its structure.	**07**
Q.5	**(a)**	Write an algorithm to show the relocation using linker.	**07**
	(b)	Write a brief account on code optimization.	**07**

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OR

Q.5 **(a)** Explain the following:

1. Link time address
2. Relocation address
3. Translation time address
4. Load origin
5. Linked origin
6. Relocation factor
7. Absolute loader

(b) What do you understand by triple form for expressions? Explain **07** with appropriate example.

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