Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER (SYLLABUS) EXAMINATION- WINTER 2017

Subject Code: 2150708 Date: 13/11/2017

Subject Name: System Programing

Time: 10.30AM to 01.00PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1*	**(a)**	Explain different kinds of system software.	**03**
	(b)	Define the following terms: 1)Backpatching 2)Simple phrase grammar 3)Left recursion 4)Top-down parsing	**04**
	(c)	Which activity reduce specification gap? Explain with suitable example. Who will reduce execution gap?	**07**
Q.2	**(a)**	Draw a flowchart of maintaining Table of Incomplete Instruction (TII) in assembler.	**03**
	(b)	Construct a deterministic finite automata for (0|1)*011	**04**
	(c)	Write algorithm for practical approach of top down parsing.	**07**
		OR	
	(c)	Construct predictive parsing table for following grammar: E->BA A-> &BA|€ B->true|false	**07**
Q.3	**(a)**	Explain the data structure of single pass assembler.	**03**
	(b)	Explain the use of intermediate code with example in assembler and also mention field of it.	**04**
	(c)	Construct an operator precedence matrix for the operators of a grammar for expressions containing arithmetic, relational and Boolean operator.	**07**
		OR	
Q.3	**(a)**	Explain the difference between literal and constant in assembler with its syntax. Why POOLTAB is requiring?	**03**
	(b)	Which data structure is used for automatic dynamic allocation and memory access? Explain with suitable example.	**04**
	(c)	Give suitable example for nested macro call with its data structure.	**07**
Q.4	**(a)**	Explain use of value number in local optimization.	**03**
	(b)	Give suitable example for macro by using conditional expansion or expansion time loops.	**04**
	(c)	Explain Self relocating program and overlay structure program.	**07**
		OR	
Q.4	**(a)**	Explain pure and impure interpreter.	**03**
	(b)	Explain the front end of toy compiler with suitable example.	**04**
	(c)	Draw the expression tree for the string f+(x+y)*((a+b)/(c-d)) by their evaluation order and mention register required label in each node.	**07**

Q.5	**(a)**	Explain working of triple, quadruples and indirect triples with example.	**03**
	(b)	Explain attributes of formal parameter and expansion time variable in macro.	**04**
	(c)	Define the following terms 1) Translation time address: 2) Linked time address 3) Load time address: 4) Translated origin: 5) Linked origin: 6) Load origin: 7) Interpreter	**07**

OR

Q.5	**(a)**	Explain operand descriptor and register descriptor for a*b.	**03**
	(b)	Explain absolute loader in detail.	**04**
	(c)	Explain Naïve Bottom up parsing algorithm with example and also mention which problem occurs during parsing.	**07**

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