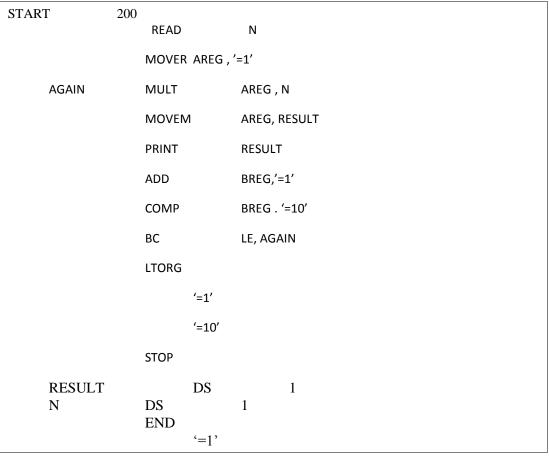
Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER - VI (OLD). EXAMINATION - WINTER 2016

		ject Code: 160706	Date: 25/10/2016	
	Tin	eject Name: System Programming ne: 10:30 AM to 01:00 PM ructions:	Total Marks: 70	
		 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 		
Q.1	(a)	Define: language processor. Also list different types of Language Processors. Construct DFA for- 0*1*(0/1)#		07
	(b)	Define: Ambiguous Grammar. Define: Pass of compiler. Consider following grammar- S → iCtSeS iCtS a C → b		07
		check whether the given grammar is ambiguous or not.		
Q.2	(a)	Write unambiguous production rule for desk calculator (+, -, Apply shift-reduce parser on : $id*id+id/id$	*, /, ^).	07
	(b)	i) Eliminate left recursion from following grammar. $S \rightarrow A$		07
		$A \rightarrow Ad \mid Ae \mid aB \mid aC$		
		$B \rightarrow bBC \mid f$		
		$C \rightarrow g$		
		ii) Explain Left Factoring with appropriate example.		
		OR		
	(b)	Define: Operator Precedence Parser. Apply Operator Precedence Parser on - id*id+id-id*id		07
Q.3	(a) (b)	Explain Analysis Phase of Language Processor in detail. Explain in detail-use of various data structures (tables) nee assembler. Explain various suitable data structures for the sym		07 07
		OD		

Q.3 (a) Given assembly program and instruction opcode. Show Data Structure of pass1 0 Assembler.



Instruction opcode:

MOVER: 04	MOVEM: 05	MULT: 03	ADD: 01
COMP: 06	BC: 07	PRINT: 10	READ:09
STOP:00			
ASSEMBLERDIRE CTIVES:			
START: 01	END:02	LTORG:05	
DECLARATION STATEMENT			
DC:01	DS:02		

(b) Explain in brief design of a Two Pass Assembler.

07

07

Q.4 (a) Explain in brief the design of a macro assembler.

07

(b) i) Illustrate expansion of nested macro calls by giving example.

07

ii) Write and explain the algorithm for macro expansion.

OR

- Q.4 (a) i) Define a macro taking A and B as parameters to compute A = A * B + B * B + A 07
 - ii) Compare and Contrast macro preprocessor and macro assembler.

Q.4	(b)	Explain in brief self relocating programs in detail.	07
Q.5	(a)	Explain in detail: Peephole optimization.	07
	(b)	Explain design of a linker by addressing issues of	07
		relocation and linking.	
		OR	
Q.5	(a)	Explain Symbol Table management in detail. Also discuss various data structures used	07
_		for Symbol table organization.	
	(b)	i) Explain in detail- Different Intermediate code representations.	07
	` /	ii) Explain following with example.	
		* Triple	
		* Quadruple	
		Ç	
