

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2016****Subject Code:2150708****Date:11/05/2016****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.

- Q.1** (a) Compare user-centric view and system-centric view of system software. **07**  
 (b) What is Symbol table? Explain how one can organize Symbol table using Linear Data Structure? **07**
- Q.2** (a) What are the Advanced Assembler Directives? Explain any two with example. **07**  
 (b) List various phases of Language Processor. Explain any one phase in detail. **07**
- OR**
- (b) Given the source program: **07**

	START	100
A	DS	3
L1	MOVER	AREG, B
	ADD	AREG, C
	MOVEM	AREG, D
D	EQU	A+1
L2	PRINT	D
	ORIGIN	A-1
C	DC	'5'
	ORIGIN	L2+1
	STOP	
B	DC	'19'
	END	L1

- (a) Show the contents of the symbol table at the end of Pass I.  
 (b) Explain the significance of EQU and ORIGIN statement in the program and explain how they are processed by the assembler.  
 (c) Show the intermediate code generated for the program.
- Q.3** (a) Explain use and field of following tables of macro. **07**  
 KPDTAB, MDT, EVTAB, SSTAB  
 (b) Explain following facilities for expansion time loop with example. **07**  
 (1) REPT statement (2) IRP statement
- OR**
- Q.3** (a) Explain following terms with suitable example. **07**  
 (1) Expansion time variable (3) Semantic expansion  
 (2) Positional parameter (4) Macro Pre-processor  
 (b) Draw a flowchart and explain simple one pass macro processor. **07**
- Q.4** (a) With example explain how relocation is performed by linker? **07**

(b) Explain Absolute loader with example. **07**

**OR**

**Q.4** (a) What is overlay? Explain linking of overlay structured program. **07**

(b) In brief explain relocating loader. **07**

**Q.5** (a) (1) Explain types of grammar. **03**

(2) Explain lexical analysis of language processor. **04**

(b) Given following expression:  $x = -a * b + -a * b$  **07**

(1) Write three address codes for the expression.

(2) Optimize the three address code if it is possible to do so.

(3) Give triple implementation for the three address code of the expression.

**OR**

**Q.5** (a) Explain recursive descendent parsing algorithm. **07**

(b) What is interpreter? Explain pure & impure interpreters. **07**

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