

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3160715****Date:10/06/2022****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.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

- Q.1**
- | | | |
|-----|---|-----------|
| (a) | Define system software. Give difference between system software and application software. | 03 |
| (b) | Explain the user-centric view and system-centric view of system software. | 04 |
| (c) | Explain lexical, syntax and semantic analysis with example. | 07 |
- Q.2**
- | | | |
|-----|--|-----------|
| (a) | Explain the following. | 03 |
| | 1. ORIGIN 2. EQU 3. LTORG | |
| (b) | Show the difference between positional parameter and keyword parameter in macro. | 04 |
| (c) | Compare variant I and variant II of intermediate code. | 07 |
- OR**
- | | | |
|-----|---------------------------|-----------|
| (c) | Given the source program: | 07 |
|-----|---------------------------|-----------|

	START	200
	MOVER	AREG, ='5'
	MOVEM	AREG, M
L1	MOVER	AREG, ='2'
	ORIGIN	L1+3
	LTORG	
NEXT	ADD	AREG, ='1'
	SUB	BREG, ='2'
	BC	LT, BACK
	LTORG	
BACK	EQU L1	
	ORIGIN	NEXT+5
	MULT	CREG, ='4'
	STOP	
X	DS	1
	END	

1. Show the content of symbol table generated at the end of pass I.
2. Show the intermediate code generated for the program.

Q.3	(a) Compare and contrast the properties of macros and subroutines with respect to following criterion. 1. Code space requirement 2. Execution speed 3. Processing requirement by assembler 4. Flexibility	03
	(b) What is program relocation? How it is performed?	04
	(c) List and explain all the tables used in macro preprocessor.	07
OR		
Q.3	(a) Demonstrate the use of AIF and AGO.	03
	(b) Explain in brief about self relocating program.	04
	(c) List and explain all the task involved in macro expansion.	07
Q.4	(a) Explain compile-and-go loaders in brief.	03
	(b) What is debugger? Explain different types of error in program.	04
	(c) What is overlay? Explain the linking of overlay structured program performed.	07
OR		
Q.4	(a) Differentiate between linker and loader.	03
	(b) Differentiate pure and impure interpreter.	04
	(c) Write and explain an algorithm for first pass of the Linker program.	07
Q.5	(a) Explain Ambiguous Grammar.	03
	(b) Eliminate left recursion from the following grammar. $S \rightarrow Aa / b$ $A \rightarrow Ac / Sd / \epsilon$	04
	(c) What is optimizing transformation? discuss various optimizing transformations.	07
OR		
Q.5	(a) Define the following. 1. Finite state automaton 2. Regular expression 3. Operator grammar	03
	(b) Explain in brief about causes of large semantic gap.	04
	(c) Explain recursive descent parsing algorithm.	07
