

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021

Subject Code:2150708**Date:04/09/2021****Subject Name:System Programming****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) What are the advanced assembler directives? Explain any two with examples.	03
	(b) Explain memory allocation in block structured language.	04
	(c) Define Macro and explain Marco expansion algorithm.	07
Q.2	(a) Differentiate between passes and phases of compiler.	03
	(b) Write a short note on bootstrap loader.	04
	(c) Explain life cycle of a source program. Also explain different views on the meaning of a program.	07
OR		
(c)	Given the source program:	07
	<pre> START 100 A DS 3 L1 MOVER AREG, B ADD AREG, ='13' MOVEM AREG, D D EQU A+1 L2 PRINT D STOP B DC '19' END </pre>	
	(i) Show the contents of the symbol table, literal table & pool table.	
	(ii) Show the intermediate code generated for the program.	
Q.3	(a) Explain compiler-compiler and cross-compiler.	03
	(b) Explain positional parameter and keyword parameter with example.	04
	(c) Explain design of linker in brief.	07
OR		
Q.3	(a) Explain REPT and IRP Statement.	03
	(b) Explain Macro prototype & model statement with the help of example.	04
	(c) List various phases of language processor. Explain any one phase in detail.	07
Q.4	(a) Draw an FA accepting regular expression {a, b}*{a}.	03
	(b) Define forward reference. How it can be solved using back-patching?	04
	(c) What is program relocation? How relocation is performed by linker? Explain with example.	07
OR		
Q.4	(a) Compare various intermediate code forms for an assembler.	03
	(b) Define linking. How external reference is resolved in linking?	04
	(c) List and explain advance macro facility with suitable example.	07
Q.5	(a) Explain the term loader with its basic function.	03
	(b) Define and explain in brief: i) MNT ii) APT iii) PDT iv) MDT.	04

(c) Given the Grammar, evaluate the string id-id*id using shift reduce parser. **07**

$E \rightarrow E - T$

$E \rightarrow T$

$T \rightarrow T * F$

$T \rightarrow F$

$F \rightarrow id$

OR

Q.5 (a) What is pure and impure interpreter? **03**

(b) Eliminate left recursion from the following grammar: **04**

$S \rightarrow AB$

$A \rightarrow CB \mid b$

$C \rightarrow Sa$

$B \rightarrow b$

(c) What is memory binding? Explain dynamic memory allocation using extended stack model. **07**
