GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– VIII EXAMINATION – SUMMER 2020

Subject Code: 2170701   **Date:26/10/2020**
Subject Name: COMPILER DESIGN
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.**

			MARKS
Q.1	**(a)**	Write a brief note on input buffering techniques.	**03**
	(b)	Explain with suitable example what is bootstrapping?	**04**
	(c)	Explain different phases of compiler.	**07**
Q.2	**(a)**	Explain panic mode recovery strategy.	**03**
	(b)	Check whether the following grammar is ambiguous or not.	**04**

S→ (S) S

S→ε

(c) Construct a DFA for a given regular expression (010+00)*(10)*   **07**

OR

(c) Construct DFA accepting the strings of binary digits which are even   **07**
numbers.

Q.3 **(a)** Define the following terms: **03**
1) Handle **2)** Handle pruning **3)** Left Factoring

(b) Explain shift reduce parsing technique in brief.   **04**

(c) Construct an LL(1) parsing table for the following grammar: **07**

S →   aBDh
B →   cC
C →   bC| €
D →   EF
E →   g | €
F →   f | €

OR

Q.3 **(a)** What is a symbol table? Discuss any two data structures suitable for   **03**
it.

(b) Eliminate left recursion from following grammar.   **04**

S → Aa | b
A → Ac | Sd | f

(c) Construct an SLR Parsing table for the following grammar.   **07**

E →   E + T|T
T →   T * F|F
F →   (E)
F →   id

P.T.O

Q.4	(a)	Explain Control Stack.	03
	(b)	What do you mean by dangling references?	04
	(c)	Translate the expression $-(a + b) * (c + d) + (a + b + c)$ into 1. Quadruples 2. Triples 3. Indirect triples.	07

OR

Q.4	(a)	Translate the arithmetic expression $a * -(b + c)$ into 1. Syntax Tree 2. Postfix Notation 3. Three Address code	03
	(b)	Write three address code for $a := a + a * b + a * b * c - a/b + a * b$	04
	(c)	What is the use of a symbol table? How the identifiers are stored in the symbol table?	07
Q.5	(a)	Explain parameter passing techniques for procedure.	03
	(b)	List the different conflicts that occur in Bottom up parsing and give examples for that.	04
	(c)	Explain various code optimization techniques.	07

OR

Q.5	(a)	Draw a DAG for expression: $a + a * (b - c) + (b - c) * d$.	03
	(b)	Compare inherited attributes vs. synthesized attributes.	04
	(c)	Write the generic issues in the design of code generators.	07

****