

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2170701

Date: 15/11/2018

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) List the cousins of compiler and explain the role of any one of them.	03
	(b) Write a brief note on input buffering techniques.	04
	(c) Explain front end and back end of compiler in detail.	07
Q.2	(a) Define the following terms and give suitable example for it. 1) Handle 2) Handle pruning 3) Left Factoring	03
	(b) Explain all error recovery strategies used by parser.	04
	(c) Construct LL(1) parsing table for the following Grammar: E → E+T T T → T*F F F → (E) a	07
	OR	
	(c) Construct NFA for following regular expression using Thompson's notation and then convert it into DFA. (a/b)*abb#	07
Q.3	(a) Define the following terms and give suitable example for it. 1) Augmented Grammar 2) LR(0) Item 3) LR(1) Item	03
	(b) Differentiate Top Down Parsing and Bottom up parsing	04
	(c) Construct SLR parsing table for the following grammar : S → (L) a L → L,S S	07
	OR	
Q.3	(a) Give the difference between SLR and CLR Parser.	03
	(b) List the different conflicts that occur in Bottom up parsing and give examples for that.	04
	(c) Implement the following grammar using Recursive Descent Parser. S → Aa bAc bBa A → d B → d	07
Q.4	(a) What is Ambiguous Grammar? Describe with example.	03
	(b) Give the difference between synthesized attributes and inherited attributes	04
	(c) Construct CLR parsing table for the following grammar : S → AA A → aA b	07
	OR	
Q.4	(a) List the different issues in code generation phase and describe any two issues.	03
	(b) Explain parameter passing techniques for procedure.	04
	(c) Explain Quadruple, triple and indirect triple with suitable example.	07

- Q.5 (a) Draw syntax tree and DAG for the statement $x=(a+b)*(a+b+c)*(a+b+c+d)$ 03
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(b) Explain dynamic memory allocation strategy. 04
(c) What is an activation record? Explain how they are used to access local and global variables. 07

OR

- Q.5 (a) Write a note on stack allocation strategy. 03
(b) Give the translation scheme that converts infix to postfix expression for the following grammar and also generate the annotated parse tree for input string "id+id*id" 04
 $E \rightarrow E+T \mid T$
 $T \rightarrow T * F \mid F$
 $F \rightarrow id$
(c) Discuss various code optimization techniques with examples. 07

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