CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

Seventh Semester of B. Tech. Examination (C.E.) March-2018

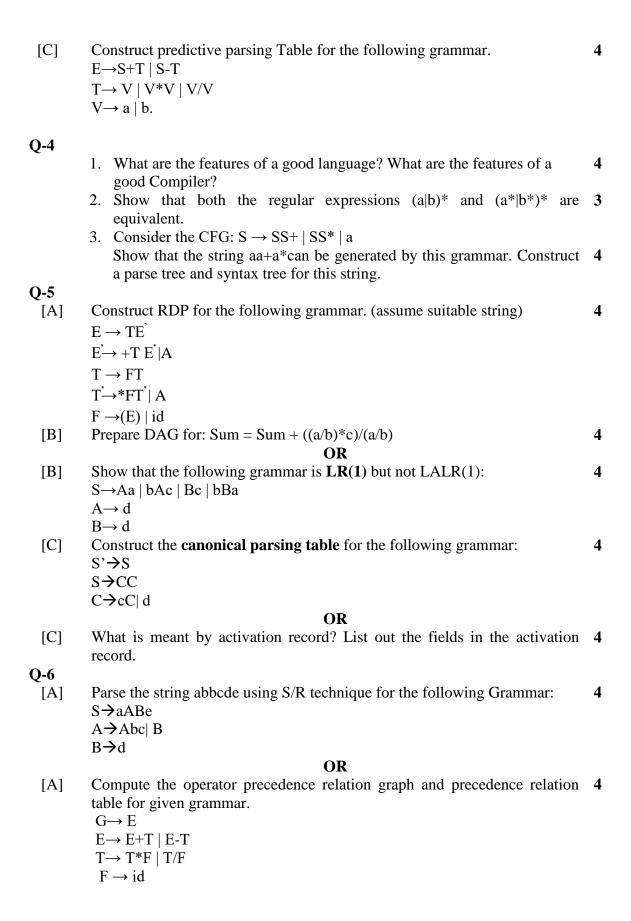
CE401 Compiler Construction (CC)

Date: 28.03.2018, Wednesday Time: 10:00 a.m. To 01:00 p.m. Maximum Marks: 70

Instructions:

- 1. The question paper comprises of two sections.
- 2. Section I and II must be attempted in separate answer sheets.
- 3. Make suitable assumptions and draw neat figures wherever required.
- 4. Rough work is to be done in the last page of main supplementary, please don't write anything on the question paper.
- 5. Indicate clearly, the option(s) you attempt along with its respective question no.
- 6. Figures to the right indicate full marks.

	SECTION-I	
Q-1	Answer the following questions.	
	1. Explain the analysis synthesis model of compilation. List the factors that affect the design of a compiler. Also List major functions done by compiler.	5
	 2. Construct a DFA for a given regular expression (010+00)*(10)* 3. How do the parser and scanner communicate? Explain with the block diagram communication between them. 	4 2
Q-2		
[A]	Compare Inherited Attributes with Synthesized Attributes.	2
[B]	Construct predictive parsing table for following.	6
	$S \rightarrow A$	
	$A \rightarrow aB \mid Ad$	
	B -> bBC f	
	$C \rightarrow g$	
[D]		4
[B] [C]	Explain various code optimization techniques. Explain: Error Recovery Strategies in Compiler in brief.	6 4
Q-3	Explain. Error Recovery Strategies in Compiler in orier.	4
[A]	Enlist and discuss the challenges in the Code Generation phase of the	4
[2 1]	Compiler specifically.	•
[B]	Describe the LEX file structure with an example.	4
	OR	
[B]	Which are the design considerations for constructing a compiler? Which are	4
	the major issues in designing (constructing) the compiler?	
[C]	Find out FIRST & FOLLOW sets for all the Non-terminals	4
	$S \rightarrow AcB \mid cbB \mid Ba$	
	$A \rightarrow da \mid BC$	
	$B \rightarrow g \mid C$	
	$C \rightarrow h \mid C$	



[B] Write Syntax Directed Definition for translating following grammar for 4 postfix notation. Also draw annotated parse tree for 9-5+2. $\exp r \rightarrow \exp r + term$ $\exp r \rightarrow \exp r - term$ expr→ term term $\rightarrow 0 \mid 1 \mid \dots \mid 9$ OR Compare: Static v/s Dynamic Memory Allocation [B] 4 What is Intermediate Form of the code? Which are the advantages of it? [C] 4 What are generally used intermediate forms? Write N-Tuple notation for: (a+b)*(c+d)-(a+b+c)OR [C] Prepare the SLR parsing Table with error detection for the following grammar. 4 $E \rightarrow E + E \mid E * E \mid (E) \mid id$