www.FirstRanker.com FirstRanker.com | 14-May-2019 13:38:46 | 45.115.62.2

www.FirstRanker.com

wwwsEiretRankes@oom

Total Marks: 70

Roll No.

## BTECH (SEM VI) THEORY EXAMINATION 2018-19 COMPILER DESIGN

Time: 3 Hours

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

## SECTION A

## 1. Attempt *all* questions in brief.

- a. What are the two parts of a compilation? Explain briefly.
- b. What is meant by viable prefixes?

ker.com

- c. What are the classifications of a compiler?
- d. List the various error recovery strategies for a lexical analysis.
- e. What is dangling else problem?
- f. What are the various types of intermediate code representation?
- g. Define peephole optimization.

## **SECTION B**

## 2. Attempt any *three* of the following:

- a. Write the quadruples ,triple and indirect triple for the following expression: (x+y)\*(y+z)+(x+y+z)
- b. What are the problems with top down parsing? Write the algorithm for FIRST and FOLLOW.
- c. Perform Shift Reduce Parsing for the given input strings using the grammar

S->(L)|a L->L,S|S

i) (a,(a,a))

 $A \rightarrow cA \mid a$  $B \rightarrow ccB \mid b$ 

- ii) (a,a)
- d. What is global data flow analysis? How does it use in code optimization?
- e. Construct LR(0) parsing table for the following grammar  $S-> cB \mid ccA$ 
  - **SECTION C**

## 3. Attempt any *one* part of the following:

(a) Convert following NFA to equivalent DFA and hence minimize the number of states in the DFA.

110263



Printed Pages:2

Paper Id:

 $2 \ge 7 = 14$ 

7 x 3 = 21

 $7 \ge 1 = 7$ 

www.FirstRanker.com FirstRanker.com | 14-May-2019 13:38:46 | 45.115.62.2

## www.FirstRanker.com

Explain the various parameter passing mechanisms of a high level language. (b)

#### 4. Attempt any one part of the following:

ker.com

Printed Pages:2

How would you represent the following equation using DAG? (a)

## a:=b\*-c+b\*-c

Distinguish between static scope and dynamic scope. Briefly explain access to (b) non-local names in static scope.

#### 5. Attempt any one part of the following:

- Write short notes on the following with the help of example: (a)
  - Loop unrolling (i)
  - (ii) Loop Jamming
  - **Dominators** (iii)
  - Viable Prefix (iv)
- (b) Draw the format of Activation Record in stack allocation and explain each field in it.

## 6. Attempt any one part of the following

- Write down the translation procedure for control statement and switch (a) statement
- Define Syntax Directed Translation. Construct an annotated parse tree for the (b) (4 \* 7 + 1) \* 2, using the simple desk calculator grammar. expression

## 7. Attempt any one part of the following:

- Explain in detail the error recovery process in operator precedence parsing (a) method.
- Explain what constitute a loop in flow graph and how will you do loop (b) optimizations in code optimization of a compiler.

 $7 \times 1 = 7$ 

 $7 \ge 1 = 7$ 

# $7 \ge 1 = 7$

# b. c



 $7 \ge 1 = 7$