



NAAC ACCREDITED 'A' GRADE INSTITUTION) Declared as State Private University under section 2f of the UGC act, 1956

DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"T3,EXAMINATION2017-2018"

Semester:4thDate of Exam:17/5/2018Subject:TOC&CDSubject Code:CSH209-TBranch:CSE Session:IICourse Type: CORECourse Nature: HardCourse Type: CORECourse Nature: HardProgram: B.TechMax.Marks: 80Signature: HOD/Associate HOD:

Note: All question are compulsory from Part A (2X 10=20Marks). Attempt any two questions from Part B (15 marks each). Attempt any two questions from Part C (15 marks each).

- 1 (a) What do you mean by Recursive Descent Parsing.
  - (b) Give two differences between top down parser and bottom up parser.
  - (c) What is an ambiguous grammar. Give example for the same

(d) Discuss any two types of conflicts that occur while constructing an LR parser.

- (e) List down all the token and its types for string: printf("the value of x=%d",i)
- (f) Construct a parse tree for string (id+id\*id) using grammar E->E+E|E\*E|(E)|id

(g)What is meant by operator grammar? Give an example.

- (h) Explain Synthesis attribute with example.
- (i) Explain Inherited attribute with example.

(j) Define DAG

## PART B

1. (a) Check if the following grammar is accepted by CLR parser. Support your answer with parsing table for the same.

S-> AA			10
A->aA   b			
(b)Eliminate left factoring for the following grammar.			2.5
S->aAd aB	A->a ab	B->ccd ddc	
(c) Eliminate left recursion for the following grammar.			2.5
S-> (L)   a	L-> L, S	L-> S	

2 (a) Construct a LL(1) parser table of the following grammar with the help of table(s) for FIRST() and FOLLOW().Note: € represent null 10

 $E \rightarrow TE'$   $E' \rightarrow +TE' | \notin$   $T \rightarrow FT'$   $T' \rightarrow *FT' | \notin$  $F \rightarrow id | \notin$ 

(b) Discuss all the phases of compiler that falls in analysis phase of compiler with suitable examples. 5

3(a) Construct a LR(0) parser for the following grammar and highlight the conflicts (if any) in the<br/>table.S->Aa | bAc | dc | bda

A-> d

3(b) Give two differences between compiler and interpreter. Discuss all the phases of compiler that falls in synthesis phase of compiler with examples. 2+3

## PART C

1.(a) Discuss following methods of code optimization along with suitable examples. 5\*2=10
Strength Reduction, Dead Code Elimination, Constant Folding, Redundancy Elimination,
Simplification

(b) Construct an SDT for input string: 2\*3+4 and determine the output for the same.

S-> ER R-> \*E{printf("\*");}R | R E-> F+ E { printf("+");} | F F-> num {printf(num.val);}

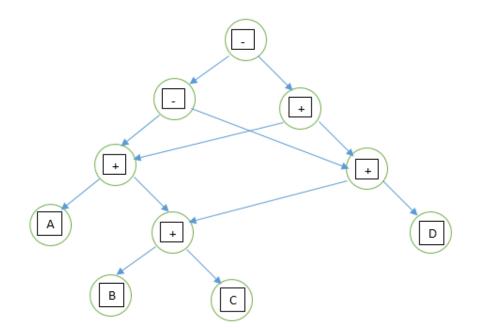
2. (a) Represent input string (a\*b)+(a\*b\*c)+(d/e\*f) with the help of syntax tree, directed acyclic graph, postfix notation and three address code. 4\*2=8

(b) What do you understand by the term three address code? Also using (a\*b)+(a\*b\*c)+(d/e\*f) as string construct the tables for Quadruples and Triples 1+2\*3=7

3. (a) Discuss three methods of loop optimization.

(b) Write three address code for the following expression If a<br/>b && c>d then t=1 else e=0

(c) Explain the concept of tokenization. Generate three address code from the following DAG where (-) represent minus sign and (+) represent addition sign 3+2



5

10

4

3\*2=6