Ahmedabad Institute of Technology

Computer Engineering Department

Compiler Design (2170701)

Assignment

Assignment -1 (Any Four Question out of 6) -20 Marks		
1	For a statement given below, write output of all phases (except that of optimization phase) of a compiler.a = a + b * c ;	7
2	Define cross-compiler, token and handle,Compiler, Interpreter assembler ,preprocessor.	7
3	Write a short note on input buffering method.	7
4	Draw DFA for the following regular expression using firstpos( ), lastpos ( ) and followpos ( ) functions. (a | b) * a #	7
5	Write an algorithm for Thompson's construction method. Apply the algorithm to construct NFA for following regular expression. (a | b)*abb.	7
6	Explain a)linker b) loader c)Regular Expression. d)Token. e) Lexeme. f)Pattern.	7

Assignment -2 (Any Four Question out of 6) -20 Marks		
1	Write short note on context free grammar (CFG) explain it using suitable example	7
2	(i) Compare top-down and bottom-up parser. (ii) Explain right - most-derivation-in-reverse with the help of an example	7
3	Check the following grammar is left recursive or not. Justify your answer. If Left recursive then make grammar as non-left recursive. S → (L) | a. L → L , S | S.	7
4	Check given grammar is LL(1) but not SLR(1). S ->AaAb | BbBa A -> € B -> €	7
5	Write a short note on operator precedence parsing with an example.	7
6	Define handle and handle pruning. Explain the stack implementation of shift reduce parser with the help of example.	7

Assignment -3 (Any Four Question out of 6) -20 Marks		
1	Construct the LALR table for the following grammar. S -> CC C ->aC C -> d	7
2	Construct the CLR parsing table for the following grammar. S -> CC C ->aC C -> d	7
3	Check the following grammar is LR(1) or not.S → AaAb/BbBa A → ^ B →^	7
4	Define syntax tree. What is s-attributed definition? Explain construction ofsyntax tree for the expression a-4+c using SDD	7
5	What is inherited attribute? Write syntax directed definition with inherited attributes for type declaration for list of identifiers.	7
6	Give the translation scheme that converts infix to postfix expression for the following grammar and also generate the annotated parse tree for input string 7+3+2.**(Dec-2015)** E → E+T E → T T → 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9	7

Assignment -4 (Any Four Question out of 6) -20 Marks		
1	Explain function preserving transformations with example.	7
2	Discuss differences between inherited attributes and synthesized attributes.	7
3	Write down short note on various Error–Recovery Strategies.	7
4	Translate the arithmetic expression a*-(b+c) into 1. Syntax tree 2. Postfix notation 3. Three address code**.**	7
5	What is importance of intermediate code? Discuss various representations of three address code using the given expression. a = b * -c + b * -c	7
6	Explain the following parameter passing methods**.** 1. Call-by-value 2. Call-by-reference 3. Copy-Restore 4. Call-by-NamE	7

Assignment -5 (Any Four Question out of 6) -20 Marks		
1	Discuss various Storage allocation strategies in detail.	7
2	What is an activation record? Explain how they are used to access various local and global variables	7
3	What is symbol table? For what purpose , compiler uses symbol table?	7
4	Write Short notes on **i)** Local and loop optimization ii)induction variable elimination iii)Peephole Optimization method	7
5	Define: DAG. Explain DAG representation of basic block with example	7
6	Discuss the issues in the design of code generation**.**	7