DELHI TECHNICAL CAMPUS

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Assignment 2

Instructions:

- **All questions are compulsory to attempt.**
- **Assignment must be submitted in handwritten manner in separate notebook/A4 size sheets with cover page.**
- **Submit the assignment on or before (Mentioned date).**

Subject: COMPILER DESIGN	**Subject Code: CIC-303**
Class: B.Tech CSE 5th	**Faculty Name: Dr. Seema Verma/Ms Sweta**
Date of Issue:	**Date of Submission: Oct 31, 2023**

Sr No	Question	CO	Level
1.	Explain in brief with example: a. Role of parser in compiler b. Why Ambiguous grammar is a problem and how it can be resolved (only state methods) c. Analyze Top down parser and Bottom up parser (specify the types also with diagram) d. Problems with Top down parser and removal of left recursion; how Left factoring is done e. How can the LL(1) grammar be checked (state rules) f. Use of First and follow in parser g. Significance of handle and handle pruning h. Significance of Shift Reduce parser i. Role of Operator grammar and Operator Precedence Parser (also state advantages and disadvantages) j. Significance of Leading and Trailing in Operator Precedence Parser k. Analyze various LR Parsers	CO2	L2,L4
2.	Consider the following grammar: S→ a | ^ | (T) T→ T,S | S. In the above grammar, find leftmost and rightmost derivation for	CO2	L3

	a) (a, (a,a)) b) (((a,a), ^, (a)), a)		
3.	Remove left recursion from the following grammar: S → Aa | b A → Ac | Sd | f	CO2	L3
	Design the predictive Parsing Table for the following grammars and check whether the given grammar is LL(1) or not (4-8):		
4.	S→ACB|CbB| A→da|BC B→g|Є C→h|Є	CO2	L6
5,	S→AaAb|BbBa A→ Є B→Є	CO2	L6
6.	S →1AB| Є A →1AC| 0C B→0S C→1	CO2	L6
7.	#=end marker S →S# S →qABC A →a|bbD B →a| Є C →b| Є, D →c| Є	CO2	L6
8.	S → i C t S E | a E → e S | ε C → b	CO2	L6
	Design LR(0) and LR(1) parsing table for the following: (9-11)		
9.	S→Aa|bAc|dc|bda	CO2	L6
10.	S→A A→AB| Є A→aB| b	CO2	L6
11.	S→xAy|xBy|xAz A→aS|q B→q	CO2	L6