DELHI TECHNICAL CAMPUS

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Assignment 3

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: 29 Nov 2023**

Sr No	Question	CO	Level
1.	Consider a simplified programming language that supports variable declarations and assignments. Design a syntax-directed translation scheme to generate intermediate code for this language. The translation scheme should include the following: o Attributes to track the type and value of variables. o Semantic actions to handle variable declarations and assignments. o Symbol table operations to store and retrieve variable information. o Provide the translation rules and explain how the translation scheme can be implemented for a sample program that declares and assigns values to two variables.	CO3	L3
2.	Error handling in a compiler involves various stages, including lexical analysis, parsing, semantic analysis, and code generation. Explain how each stage contributes to error handling and describe the challenges associated with error handling at each stage. Provide examples of error scenarios at each stage and discuss possible strategies for error recovery or reporting.	CO3	L3
3.	Design a symbol table data structure for a compiler that supports nested scopes, function declarations, and variable scoping rules. Explain how the symbol table can efficiently handle symbol lookup and scope resolution, including the handling of shadowed variables and nested scopes. Discuss the trade-offs and considerations involved in the design of the symbol table.	CO3	L3