



# COMSATS University Islamabad, Wah Campus

## Lab Assignment 3

Department of: **COMPUTER SCIENCE**

Class/Program: **BS(7-A,C,E,D) MCS-1** Due Date: **2 June 2022 16:00**  
Subject: **Compiler Construction** Instructor: **Muhammad Nadeem**

**Note: copying will lead to ZERO**  
**You need to upload your source code only.**

Q1. Semantic analysis is major part of compiler construction. SDT is used to define grammar for semantic analysis.

Consider the following SDT.

$E \rightarrow E + T \quad \{E.val = E.val + T.val\}$

$E \rightarrow T \quad \{E.val = T.val\}$

$T \rightarrow T * F \quad \{T.val = T.val * F.val\}$

$T \rightarrow F \quad \{T.val = F.val\}$

$T \rightarrow T \wedge G \quad \{T.val = T.val \wedge G.val\}$

$T \rightarrow G \quad \{T.val = G.val\}$

$G \rightarrow num \quad \{G.val = num\}$

Here  $\wedge$  is meant power.

You are required to generate tokens from input, parse it (using any parser) and perform semantic analysis.

e.g input is  $3^2 * 2$

it will generate  $num \wedge num * num$  tokens

Will parse it and ultimate result will be 18.