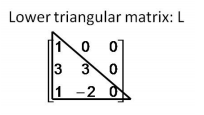
BÀI TẬP 1

**COMPILER CONSTRUCTION**

**Exercise 1.** Matrix L is a *lower triangular matrix* if it is a square matrix which all entries above the main diagonal are zero. For example,



Write a KPL program to read elements in a matrix and check whether the matrix is lower triangular matrix or not. The program prints 1 if the matrix is lower triangular, otherwise it prints 0.

**Exercise 2.** Write a program to calculate and print the sum of 2 integer numbers in KPL language. Indicates the *left parse* of the program (*Left parse* of a is the sequence of productions used in left derivation of the program from S)

**Exercise 3.** Write a program to calculate and print the sum of 2 numbers in another programming language. For example a program written in java, as follows

public class AddTwoNumbers {

public static void main(String[] args) {

int num1 = 5, num2 = 15, sum;

sum = num1 + num2;

System.out.println("Sum of these numbers: "+sum);

}

}

Find the syntax description of that language written in BNF, for example, the set of rules in the following page describes the syntax of java

<https://cs.au.dk/~amoeller/RegAut/JavaBNF.html>

Number the rules, and indicate the left parse of the program