

TEST N°1 — 45 MINUTES (PAPER ONLY)

The quality and preciseness of the redaction will be taken care of for the grading.

Exercise 1

For each of the programs in Listings 1, 2 and 3, what is the value of the variable a at the end of the program? Answer the question by making arrays containing what lines are executed.

```

1 a = 6
2 if (a < 5):
3     a = a + 1
4 if (a < 7):
5     a = 2 * a
6 else:
7     a = a + 3

```

Listing 1: Program 1.

```

1 a = 6
2 if (a < 5):
3     a = a + 1
4     if (a < 7):
5         a = 2 * a
6 else:
7     a = a + 3

```

Listing 2: Program 2.

```

1 a = 6
2 if (a < 5):
3     a = a + 1
4     if (a < 7):
5         a = 2 * a
6     else:
7         a = a + 3

```

Listing 3: Program 3.

Exercise 2

A user owns a bank account with some amount of money on it, and wishes to make a deposit or a withdrawal. Write a function that has the following specifications:

- Inputs: (a) a floating-point number `initial_amount` (the initial amount of money on the account), (b) a second floating-point number `transfer` (the value to transfer to this account if it is a deposit or from this account if it is a withdrawal), and (c) a boolean `is_deposit` (if this boolean is true, the transfer is a deposit, else it is a withdrawal).
- Output: the function returns the new amount of money on the account.
- Errors to catch: (a) check that both variables `initial_amount` and `transfer` are positive, and print an error if this is not the case ; (b) if the user wants a withdrawal of more money than what is on the bank account, print that the operation is impossible.

Exercise 3

Listing 4 contains a Python program.

```

1 sum = 0
2 for i in range(10):
3     sum = sum + i

```

Listing 4: Program 4.

1. When executing the program, nothing appears on the screen. How can we modify this program to have it print the value of the variable `sum` at the end of the program?
2. What is the value of the variable `sum` at the end of the program?
3. Write a similar program (with a loop) to compute $9! = 1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9$.

Exercise 4

For each of the following affectations, give the type of the variable, or explain why the affectation would lead to an error:

1. `a=5`
2. `b=8.6`
3. `c="Hello " + 3`
4. `d="Hello" > "There"`
5. `e=3/4`
6. `f=input("Enter a number.")`