



Faculty of Information Technology
Final Exam Exam(1), 2025/2026

Course (Code) Name: INSY 8122, Introduction to Computer Programming

Instructors:

Exam Duration: 2hrs

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Date: 18/12/2025

Group: Morning

INSTRUCTIONS:

- Answer all questions
 - All the question must be written in the booklet
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SECTION A — MULTIPLE CHOICE (10 Marks, 1 Mark Each)

1. What does the Read statement do in pseudocode?

- A) Displays information B) Creates a file C) Accepts user input D) Erases memory

2. Which of the following is a correct assignment?

- A) $x = 10 = y$ B) $10 \leftarrow x$ C) $x \leftarrow 10$ D) Assign $\rightarrow 10$

3. Which control structure is used to make decisions?

- A) Loop B) If-Else C) Break D) Continue

4. What does EndOfFile(file) return?

- A) True if file is writable
B) True if nothing left to read
C) True if file is full
D) True if the file is open

5. Which index is typically the first element in arrays?

- A) -1 B) 0 C) 1 D) 2

6. What is a function?

- A) A repeated loop
B) A block of reusable code



- C) A file creator
D) A memory block

7. Which operation deallocates memory?

- A) Writing B) Releasing memory C) Looping D) Declaring

8. Which file mode adds data to an existing file?

- A) Write B) Read C) Append D) Execute

9. In modular programming, a module is:

- A) A section of repeatable code B) A device C) A pointer D) A main function

10. A function returns:

- A) Only printed data B) A single value C) Multiple values always D) Nothing

SECTION B — SHORT THEORY (10 Marks)

(Represents Kamonyo & Sylvain)

Q1. (4 Marks)

Define the following terms in 1–2 lines each:

- a) Pseudocode
- b) Pointer
- c) Dynamic memory allocation
- d) Memory leak

Q2. (3 Marks)

- Explain what modular programming is and give two advantages of using modules.

Q3. (3 Marks)

- What is the difference between pass-by-value and pass-by-reference? Provide an example for each.



SECTION C — PRACTICAL PROGRAMMING (20 Marks)

Q4. Predict the output of the following program (4 Marks)

FUNCTION process(x)

 y \leftarrow x * 2

 IF y $>$ 10 THEN

 RETURN y - 3

 ELSE

 RETURN y + 5

 ENDIF

END FUNCTION

Variable result as Integer

Start

 result \leftarrow process(7)

 Write(result)

End

Q5. Write a function (5 Marks)

- Write a pseudocode function `is_even(number)` that returns `True` if a number is even, otherwise `False`. No input or display inside the function.

Q6. Arrays – Write a program (5 Marks)

Write a pseudocode program that:

- Accepts 8 integers from the user
- Stores them in an array
- Finds the largest and smallest number
- Displays both results

Q7. File Handling Program (6 Marks)



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Write pseudocode for a program that:

- Creates a file called **records.txt**
- Allows the user to enter **5 student names** and writes them into the file
- Opens the same file again in **Append mode** and adds **1 more name**
- Reads and displays **all names** from **records.txt**