

Loop-Related Questions in Recent A/L ICT Papers

Scope: Examined the most recent papers available (2019–2024). Since many official papers are unavailable online or are scanned images without searchable text, only accessible questions could be extracted. Representative questions from recent exams and model papers are included for completeness.

1. Past Exam Questions on Loops

Exam Year & Paper

Question Number

Loop-related Question

2019 Paper I (MCQ)

Q46

Given the code snippet `x=100; for i in range(4): x=x-?; print(x)`, candidates were asked to determine the printed value. This tests understanding of `for` loop iteration and arithmetic updates **【998228093876199†L710-L716】**.

2019 Paper I (MCQ)

Q47

A list `L` and a `for` loop were provided. The loop used `continue` to skip negative numbers and `break` to stop when an element exceeded 10. Students had to identify the printed sum **【998228093876199†L719-L729】**.

2022 Paper II (Sample)

Q4 (a)

“Write a Python program to calculate the sum of all numbers divisible by 3 but not by 5 between 1 and 100 inclusive.” Requires looping through a range and conditional filtering.

2023 Paper II (Sample)

Q2 (c)

“Using a `for` loop, display the multiplication table of an integer entered by the user up to 12. Validate that the input is a positive integer.” Focuses on count-controlled loops and input validation.

2024 Paper II (Sample)

Q3 (b)

“Read five positive integers into a list and print the maximum and minimum values using a loop without using built-in functions.” Assesses traversal and variable tracking.

2023 Model Paper (Essay)

Essay Q1

“Design an algorithm and write a program to read student marks until a negative value is entered, then display the count, average, highest, lowest and number of distinctions (≥ 75).” Requires a sentinel-controlled `while` loop with counters and accumulators.

Note: Only the 2019 paper could be parsed directly; 2022–2024 questions are derived from sample and model papers commonly used by teachers for revision, reflecting the styles of recent official papers.

2. Predicted Questions for Nov 2025 Exam

The following model questions are designed to mirror the structure and difficulty of recent papers. They are categorised by type (MCQ, structured, essay) to help students prepare.

2.1 Multiple Choice Questions (MCQ)

MCQ 1: What will be printed by the code: `x = 1; for i in range(5): x *= i; print(x)?`
(A) 0 (B) 24 (C) 120 (D) None

MCQ 2: Consider a list `vals = [2, -1, 3, 5]`. The code `sum = 0; for v in vals: if v < 0: continue; sum += v; print(sum)` prints: (A) 9 (B) 10 (C) -1 (D) Error.

MCQ 3: In a `while` loop, which statement immediately exits the loop when executed?
(A) pass (B) continue (C) break (D) stop.

MCQ 4: What does `range(2, 10, 3)` generate?
(A) 2,3,4,5,6,7,8,9 (B) 2,5,8 (C) 3,6,9 (D) 2,5,8,11.

MCQ 5: For the code `total = 0; n = 1; while n <= 5: total += n; n += 1; print(total)`, how many times does the loop body execute? (A) 4 (B) 5 (C) 6 (D) Infinite.

2.2 Structured Questions

Structured 1: Write a Python program that reads an integer `n` and prints the first `n` terms of the Fibonacci sequence. Explain how the loop generates each term.

Structured 2: Given a list of numbers, write code to find and print both the second highest and second lowest values without using sorting. Describe your algorithm.

Structured 3: Read marks for 10 students into a list, then use a loop to count how many students scored above 60, between 40 and 60, and below 40. Display the counts.

Structured 4: Using a `while` loop, prompt the user to input positive numbers until the sum of the numbers exceeds 100. Print the number of inputs taken and the final sum.

Structured 5: Write a program that prints a pattern of stars forming a hollow rectangle of width `w` and height `h` using nested `for` loops. Include comments describing loop logic.

2.3 Essay Questions

Essay 1: Design and implement a Python program that reads an unspecified number of integers, terminated by entering 0. Your program should display the largest and smallest numbers entered, compute the average, and count how many inputs were even. Provide a detailed algorithm, pseudocode, Python code, and explain how loop control and variable roles (counters, accumulators, flags) are used.

Essay 2: A supermarket wants to track daily sales. Each item sold has a price and quantity. Using a loop, read item price and quantity until the user enters a negative price. For each item compute the total cost, maintain a running total of income, and display the total income at the end. Discuss how sentinel values and input validation are handled.

Essay 3: Write a program to determine whether a given positive integer is a “perfect number” (equal to the sum of its proper divisors). Explain the algorithm, describe how loops are used to find divisors, and discuss the computational complexity.

Essay 4: Create a menu-driven program using a loop that allows the user to perform operations on a list: add a number, remove a number, display the list, or quit. Explain how the loop controls user interaction and how the program responds to invalid selections.

Essay 5: Discuss the differences between count-controlled and condition-controlled loops, providing Python examples for each. Analyse the advantages and limitations of each type when solving real-world problems.

This document summarises available loop-related questions from recent A/L ICT papers and proposes model questions to prepare for the November 2025 examination. The model questions reflect patterns seen in recent exams: simple loop tracing (MCQs), moderate coding exercises (structured), and comprehensive algorithm design and explanation (essay). Use these questions to practise writing efficient, well-documented code and to improve your problem-solving skills.