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Quiz: 03 (Set A) — Spring 2026 — Course: Structured Programming

also set B

Student Name: _____ **Student ID:** _____

Q1. **[7 Marks]**

What is the difference between an "entry-controlled" loop and an "exit-controlled" loop? Give one example of a real-life coding situation where a entry-controlled loop is the best choice.

Write a C program that takes a large positive integer from the user (for example, 245) and calculates the sum of its individual digits ($2 + 4 + 5 = 11$). Print the final sum.

Q2. **[8 Marks]**

What makes a loop run forever? Write a small example of a while loop that runs forever by mistake, and explain what is missing to fix it.

Write a C program that acts as a continuous calculator. It should repeatedly ask the user to enter a number and add each number to a running total. The program must stop asking for numbers the exact moment the user enters `0`, and then print the final total.

Q1. **[7 Marks]**

A for loop is made up of three main parts. Briefly explain the specific job of each part. What happens if you forget to include the Update part?

Write a C program that asks the user to enter a single number, and then prints the complete multiplication table for that number from 1 up to 10. For example, if the user enters 5, it should print $5 \times 1 = 5$, $5 \times 2 = 10$, and so on.

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Q2. **[8 Marks]**

Imagine you are writing a `while` loop to find the sum of all digits in a number. Why is a `while` loop a better choice for this specific problem than a `for` loop?

Write a C program for an ATM login system. The correct PIN is `1234`. The program should repeatedly ask the user to enter their PIN. If they enter the correct PIN, print "Access Granted!" and stop. If they guess incorrectly 3 times in a row, print "Card Blocked!" and immediately lock them out of the program.