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| [UNIVERSITY LOGO] Upload logo in export form | **HARVARD UNIVERSITY** *Faculty of Arts and Sciences* Computer Science Department **CS 50 - Introduction to Computer Science** *Academic Year: 2024-2025 | Fall Semester* |

Instructor: Dr. David Malan | Date: 2024-12-15

### STUDENT INFORMATION

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| **Student Full Name:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Student ID/Number:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Date:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Signature:** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

## INSTRUCTIONS:

1. Read all instructions carefully before beginning  
2. Write your answers clearly in the spaces provided  
3. For multiple choice questions, circle the letter of your answer  
4. Show all work for calculation problems  
5. Check your answers before submitting

# Final Examination - Computer Science Fundamentals

*Duration: 3 hours | Total Points: 100*

A comprehensive examination covering all major topics from the course.

## INSTRUCTIONS

• Read each question carefully and completely before answering

• For multiple choice questions, select the best answer

• Write clearly and legibly for all written responses

• Show all work for calculation problems where applicable

• Review your answers before submitting

• Ask the instructor if you have any questions

**Question 1.** (5 points)

What is the primary purpose of an algorithm?

A. To solve problems systematically

B. To write code faster

C. To debug programs

D. To optimize memory usage

**Question 2.** (3 points)

Python is a compiled programming language.

A. True

B. False

**Question 3.** (10 points)

Explain the difference between a list and a tuple in Python.

**Answer:**

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**Question 4.** (25 points)

Discuss the importance of data structures in computer science and provide examples of when you would use different types.

**Answer:** (Use the space below for your complete response)

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