



**METRO STATE
UNIVERSITY**

**ICS 232 Computer Organization & Architecture
Homework 1 - Chapter 1 - 10 points
Due Date: 9/4/2024**

Name:

Note: Please post your homework to ICS232 D2L on or before the due date.

Read Chapter 1 – Introduction

Essential Terms and Concepts

2. What is an ISA?

4. Name the three basic components of every computer?

28. How does the fetch-decode-execute cycle work?

29. What is a multicore processor?

Exercises

1. In what ways are hardware and software different? In what ways are they the same?

- 2. a) How many milliseconds (ms) are in 1 second?
- b) How many microseconds (μ s) are in 1 second?
- c) How many nanoseconds (ns) are in 1 millisecond?
- d) How many microseconds are in 1 millisecond?



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- e) How many nanoseconds are in 1 microsecond?
- f) How many kilobytes (KB) are in 1 gigabyte (GB)?
- g) How many kilobytes are in 1 megabyte (MB)?
- h) How many megabytes are in 1 gigabyte (GB)?
- i) How many bytes are in 20 megabytes?
- j) How many kilobytes are in 2 gigabytes?

8. Briefly explain two breakthroughs in the history of computing.

12. List five applications of personal computers. Is there a limit to the applications of computers? Do you envision any radically different and exciting applications in the near future? If so, what?

13. In the von Neumann model, explain the purpose of the:

- a) processing unit
- b) program counter

14. Under the von Neumann architecture, a program and its data are both stored in memory. It is therefore possible for a program, thinking a memory location holds a piece of data when it actually holds a program instruction, to accidentally (or on purpose) modify itself. What implications does this present to you as a programmer?

19. Explain what it means to “fetch” an instruction.



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23. What are the limitations of Moore's Law? Why can't this law hold forever? Explain.

Prepare for next class by reading Chapter 2 – Data Representation.

Read over the Group Projects document. Begin to decide which project may interest you and who you may like in your group.

Login into www.jblearning.com with the Course ID: 4AE6C2 to establish your access to the on-line chapters. Instructions are in your textbook in the card in the front of the book. Your access code is on the back of the card.

Optional Questions:

1. If you have a nickname what name would you like me to use?
2. What other computer science classes have you taken?
3. What computer programming languages do you know?
4. Is there anything else you would like to tell me that you will help you succeed in this class?