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| Instructor | ***Luke Papademas*** | Due Date | **6/9** |

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| Part | **1** | **2** | **3** | **4** | Total |
| *Maximum Points* | **25** points | **25** points | **25** points | **25** points | **100**G101010 pointsG |
| ***Your Score*** |  |  |  |  |  |

**Textbook Reading Assignment**

Thoroughly read Chapter(s) 1 in your Computer Architecture and Organization textbook.

**Part 1 Glossary Terms - An Introduction to Computer Architecture and Organization**

Define, in detail, each of these glossary terms from the realm of computer architecture and organization, in general. If applicable, use examples to support your definitions. Consult your notes or course textbook(s) as references or the Internet by visiting Web sites such as:

[**http://www.ask.com**](http://www.askjeeves.com) or [**http://www.webopedia.com**](http://www.webopedia.com/)

**(a) Cloud Computing**

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| **A distributed computing architecture whereby services are provided to users via web servers. Cloud computing architectures (such as Amazon and Google Cloud) provide SLAs to the users to determine the features and options available to the users. Cloud computing platforms can provide Saas, IaaS, PaaS, or all three depending on the provider. They also tend to provide elasticity, meaning that users can scale up or down depending on the resources required to perform their tasks.** |

**(b) ENIAC**

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| **Electronic Numerical Integrator and Computer invented by John Mauchly and J Presper Eckert. It is a vacuum tube computer recognized as the first all electronic digital computer.** |

**(c) High - Level Language**

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| **A high level language is the 5th level of the computer level hierarchy. It is just below the user level and consist of languages such as C, C++, Fortran, Lisp, and Pascal. These languages are translated using compilers.** |

**(d) nano**

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| **A prefix that represents 10^-9 (base 10) or 2^-40 (base 2).** |

**(e) Rock’s Law**

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| **A theory developed Arthur Rock that builds off of Moore’s Law and states that the cost of capital equipment to build semiconductors will double every four years. The law indicates that we can continue to build better chips, but asks will we be able to afford to build them?** |

**Part 2 Exercises - An Introduction to Computer Architecture and Organization**

Provide a brief but complete answer for each of these exercises.

**(1)** In what ways are hardware and software different? In what ways are they the same?

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**(2)** By what order of magnitude is something that runs in nanoseconds faster than something that runs in milliseconds?

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**Part 3 Exercises - An Introduction to Computer Architecture and Organization**

**(1)** Suppose you are ready to purchase a new computer for personal use. First, take a look at advertisements from various magazines and newspapers and list terms you do not quite understand. Look these terms up and give a brief written explanation. Decide what factors are important in your decision as to which computer to buy and list them. After you select the system you would like to buy, identify which terms refer to hardware and which refer to software.

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**(2)** Suppose a transistor on an integrated circuit chip were 2 microns in size. According to Moore's Law, how large would that transistor be in 2 years?   
 How is Moore's law relevant to programmers?

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**Part 4 Exercises - An Introduction to Computer Architecture and Organization**

**(1)** 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?

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**(2)** What are the challenges facing organizations that wish to move to a Cloud platform? What are the risks and benefits?

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