

Computer Science 1A
Introduction to Computer Science

CS1A

Lecture Notes for Fall Semester 2009

EXAM #1 REVIEW

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- Bring a scantron
- Some T/F
- Some Mult Choice
- Some Problem Solving
- NOT open notes/book

Exam 1 - Review

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1. History
2. Hardware
3. The Simple Computer
4. Excel & MS Word
5. Software
6. Networking
7. Problem Solving

Exam 1 - Review

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- Get a good nights rest
 - I know this is tough, but you don't think as well without sleep
- Don't skip a meal before an exam
 - Your brain needs protein → try not to eat a high carb meal
- Don't Cram! Pace your studying
 - Try not to put it off until the last minute
 - If you pace yourself → you will be prepared
- Study with classmates so you can compare notes
 - don't discuss the exam just before coming in
 - their anxiety may impact you
- Take deep breaths → relax yourself
 - Think positive thoughts → remind yourself that you are prepared
- Don't get bogged down on a question
 - answer the questions you know quickly → go back to the others
- Ask Questions
 - Calm yourself before you come in...
- Avoid being late

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- In the early 19th century, what were computers?
- What was the contribution of the south pointing chariot?
- What was the contribution of the Antikythera Mechanism?
- What invention led to the Slide rule?
- Who invented the slide rule?
- What was it used for

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- Who came up with the idea of using punch cards to automate machines
- Who is the Father of computing?
- Which were his two primary inventions that contributed to the progression of modern day computers.
- What was the difference between them
- Who was the first programmer?
- What machine were her programs written for?

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- Which system was built for the 1890 census?
- What previous technologies were incorporated into that machine?
- Who developed the first compiler?
- What three characteristics do consumer's look at to note different generations of computers?
- Which machine did the British develop to break the German code produced by the Enigma?
- Which two systems did Mauchly and Eckert build?

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- What were the breakthrough technologies for each generation of computers?
- Who developed the GUI technology that most PCs and Macs are based on today?
- In 1968, Doug Engelbart invented a small pointing device he called it a...

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Simple Computer

- What is the difference between a bit and a byte?
- What is ASCII?
- What Unicode?
- How many instructions could a computer with 8 switches understand?
- What Base is Binary?
- Why do computers use binary?

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- Know the Rules for Positional Notation (Topic 2)
- What do we use to convert from Binary, Oct, or Hex to Decimal?
- How do we convert from Decimal to Binary, Oct, or Hex?
- What base is hex?
- Know how to Add & Subtract in Binary, Oct & Hex!

- What are the basic elements of the CPU?
- Why do we store data & instructions on registers?
- What does the ALU do?
- Name 3 types of Memory?
- What is RAM?
- What is ROM?

- Order the following by speed: RAM, CACHE, HardDrive, Registers (fastest first)?
- Why not store everything in the fastest?
- Hardware refers to?
- When a computer is turned off which memory will persist?
- What is a "bootstrap" program?
- What is a non-storage I/O device?

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- o How do components communicate with the CPU?
- o Name 3 types of Buses
- o A data bus carries how much information per wire?
- o The number of wires necessary for a data bus is dependent upon what?
- o The number of wires necessary for an address bus is dependent upon what?
- o What does the control bus do?
- o T/F I/O auxiliary devices use buses to communicate with memory.

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- o T/F Hardware components include the operating system?
- o Name one thing we store on ROM
- o Where does an application have to be loaded in to be run?
- o Name 3 auxillary storage devices?
- o What does a USB drive use to store data?
- o Which is larger a Kilobyte or a Terabyte?
- o Which is larger a Kilobyte or a Megabyte?

Exam 1 - Review

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- o A microprocessor chip
 - a) opened the door for personal computers
 - b) made the first television possible
 - c) contains all the essential components for the computer on a single chip

Exam 1 - Review

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- o Know the definitions from Assignment #1
- o What do we use a comment for in MSWORD?
- o What is the syntax for an if statement?
- o What is a boolean expression?
- o What does autoforamt do?
- o What is the symbol you have to use to enter a function or a formula?

Exam 1 - Review

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- o What is the difference between a function and a formula?
- o What type of operators do we use to formulate Boolean Expressions?
- o How would we type in the sum function to sum a group of cells starting from cell D1 and ending in cell E15?
- o What is a nested if statement?
- o What is a predefined formula built into the spreadsheet program?

Exam 1 - Review

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- o What are the 2 basic Categories of software?
- o Which category does computer games fall into?
- o Which category does an operating system fall into?
- o T/F Without software computer hardware could not function in a useful way.
- o What does an operating system do?
- o What does a compiler do?

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- Give two examples of a low-level language
- What is the difference between a compiler and an interpreter
- What is source code?

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- What protocol does the internet use?
- What does the IP do in TCP/IP?
- What does the TCP do?
- Which device converts digital computer signals into analog and back again?
- What do we call the set of rules necessary for devices to communicate with each other?
- A server
 - a) stores and manages files on the network
 - b) allows users to share resources such as printers
 - c) provides services to clients on the network

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- What is a LAN?
- Is the internet a WAN or a LAN?
- What is a gateway?
- What is the Client-Server Model?
- What is a server
- Know the different Wireless technologies... such as WLAN, WIFI, Bluetooth, etc...

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- o Name two types of servers
- o Name two types of Topologies
- o Which Topology is the internet based on?
- o Describe the bus Topology - name 1 adv over the other 2
- o Before a message is sent across the internet it is broken into smaller parts called:

Exam 1 - Review

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- o What is an IP Address
- o What is a URL?
- o What is an ISP?
- o Know the different topologies

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- o Why do we need problem solving skills in computer science?
- o What is a step by step process used to solve a problem?
- o What 4 steps to we use to solve a problem?
 - 1-
 - 2-
 - 3-
 - 4-
- o Describe Divide and Conquer?
- o How do we know when we are done?

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Problem Solving

- What are the 5 software development phases?
 - 1 -
 - 2 -
 - 3 -
 - 4 -
 - 5 -
- Why is it important to spend more time on requirements and the design before implementing code in software engineering?
- What is a desk check?
- What is a flowchart?

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Problem Solving

- There are many approaches to problem solving. We discussed 6 in class. Name them.
 - 1 -
 - 2 -
 - 3 -
 - 4 -
 - 5 -
 - 6 -
- Why is divide & Conquer important to computer science and programming?
- When attempting to solve a programming problem what is the first thing we should define.
- Understand the problems we covered in class and in the book

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