

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

T **C**
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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 3 of 26

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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

- Thing 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

4 of 26

H I S T O R Y

- 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

5 of 26

H I S T O R Y

- 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?

6 of 26

H I S T O R Y

- 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?

7 of 26

H I S T O R Y

- 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...

8 of 26

- 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?

- 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!

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- 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?

11 of 26

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- 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?

12 of 26

H a r d w a r e

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

13 of 26

H a r d w a r e

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

Exam 1 - Review

14 of 26

H a r d w a r e

- 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

E X C E L & W O R D

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

EXCEL & WORD

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

Exam 1 - Review

17 of 26

Software

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

18 of 26

S o f t w a r e

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

N e t w o r k i n g

- 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

N e t w o r k i n g

- 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...

21 of 26

N e t w o r k i n g

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

Exam 1 - Review

22 of 26

N e t w o r k i n g

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

23 of 26

P r o b l e m s o l v i n g

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

24 of 26

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- 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?

25 of 26

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- 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

26 of 26