

# Lecture 35 - Final Review

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## Video

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<https://youtu.be/3B6QIT-P9nk> - Lect-35-final-review.mp4

From Amazon S3 - for download (same as youtube videos)

<http://uw-s20-2015.s3.amazonaws.com/Lect-35-final-review.mp4>

## Final

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There are 20 questions each worth 15 points. The final will be online and available on May 10 (Sunday). It will need to be completed by Friday, May 15 at Midnight of Finals week. If you need help ask. This is an open-book, open internet get help until you understand -learning based- final. The goal is to get an understanding of the questions that you get asked. The questions are from a question bank. There is 1 or more questions on each of the subjects.

## Topics

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Microcode - how to transfer from one register to another.

Microcode - how to increment a register.

Microcode - how to control the ALU.

Microcode - how to add a number.

Command Line - what is `cat` , `cat -n`

Command Line - how pipes work.

Command Line - What is a `>` pipe.

Command Line - What is a `<` pipe.

Command Line - What is a `>>` pipe.

Command Line - What is a `|` pipe.

Data Search - what is `grep` - how it works.

Data Search - How to use `wc` to get number of lines.

Data Manipulation - how to use `VI` to get a column of data.

Remote Access - How to use `ssh` to remotely login to a computer.

Remote Access - How to use `scp` to copy files between systems.

System Virtualization - What is a virtual machine.

System Virtualization - High level differences between Docker Containers and a full virtual machine.

Debugging / Profiling - how debug a program with print statements.

Debugging / Profiling - what is profile of a program.

Debugging / Profiling - what is a flame graph.

Fetch Execute Cycle - what is it.

Build Tools - What is `make` how it works.

Build Tools - How to create and manage source code control with `git`.

Unix File System - What is `ln`, `ln -s` what are the differences.

Unix File System - How are file names related to file data in Unix/Linux.

`vi/Vim` - How to create / update / delete text.

`vi/Vim` - How to use the substitute command.

`vi/Vim` - how to save your data.

`vi/Vim` - what is a modal editor.

`vi/Vim` - why is `vi` a good editor? (better than say Notepad++)

regular expressions - `grep` / `vi` / `sed` - What are `^`, `$`, `[ccl]`, `^[ccl]`, `[a-z]`, `[a-zA-Z0-9]`, `.`, `.*`, `[a-z]*`, `[a-zA-Z]*`, `[a-z]+`, `[a-zA-Z]+`

Command Line - what is `sed`

Command line - what is `awk`

Command line - what is `#!` at the beginning of a script

Command line - `chmod` and permissions in Linux/Unix.

Command line - how to make a scrip executable.

Command line - how will the shell find a command, what is the PATH

Command line - ssh - how to setup password-less login with ssh.

Command line - ssh - why is password-less login better than using a password?