

Spring 2021 COT 3100H Exam #1 Review

Exam Format - In Class

Several Free Response Questions, 100 points total

YOU WILL BE PROVIDED THE EXAM 1 REFERENCE SHEETS AND BLANK SCRATCH PAPER

Exam AID

All printed course notes.

Exam Format - Online

Exam will be split into three parts. Here are the times the parts will be posted, the due time and the late due times:

Part	Released	Due Time	Late Due Time
Logic	10:25 am	10:50 am	11:00 am
Sets	10:50 am	11:20 am	11:30 am
Roots/DRT/Log	11:20 am	11:50 am	12:00 pm

Please just print out a copy of the Exam 1 Reference Sheet and any of your course notes and use these only. I am using an honor system to ensure that you do not cheat, as well as the timings above. (The latter don't prevent cheating, but they make it unlikely that cheating can earn you extra points.)

Exam Outline

- I. Logic and Proof
 - a. Boolean variables, operators (xor not required)
 - b. Implication and related statements
 - i. inverse
 - ii. converse
 - iii. contrapositive
 - c. Truth Tables
 - d. Bitwise Operators, Binary/Decimal Conversions
 - d. Logic Laws and application
 - e. Predicates and Quantifiers

- f. Nested Quantifiers
 - i. When order matters
 - ii. How to disprove a nested quantifier statement
- g. Rules of Inference
- h. Some Definitions and Preliminaries
 - i. Divisibility
 - ii. Mod
 - iii. Algebra with expressions
- i. Proof Techniques
 - i. Direct Proof
 - ii. Proof by Contradiction
 - iii. Proof of Contrapositive
 - iv. Proof by cases

II. Sets

- a. Definitions ($\in, \subseteq, \subset, \cap, \cup, \bar{A}, -, \times, \emptyset$)
- b. Set Table
- c. Laws
- d. Operations
- e. Set Proofs/Disproofs

III. General Math Review

- a. Log Rules, Problems with Logs, System of Equations with Logs
- b. Sum, Product of the Roots of a Quadratic Equation, Manipulation to find various quantities based on those roots.
- c. Distance = Rate x Time Problems (setting up equations, solving)

Exam Procedure

I will arrive early at 10:15 am and place an exam and formula sheet on each desk.

Students may enter the room at 10:20 am and find a seat with an exam.

Students can start the exam at 10:25 am when I release the exam for online students.

At the end of the exam, in person students will just leave their exams on their desk and leave. The end time for in person will be 11:50 am. (Online students get 10 minutes extra for uploading time, but also have to submit their final answers for the first two parts much earlier.)

I will walk around and collect the exams after the room is empty.