Some possible Final Questions

The final is Friday December 20 at 8-10 am in this room.

- 2.5.6, 2.6.2, 3.5.28. 3.5.29. 6.1.3, 6.1.4.
- (Essay) What is Church's thesis? Do you believe it? Why or Why not?
- How would you show $f(n) = n!$ is Turing computable by using Church's Thesis?
- (Essay) What is an universal Turing Machine? Why is it important? What algorithms can such a machine compute?
- Why is the halting set not Turing decidable. Give an example of a language which is not Turing decidable but is Turing acceptable.
- Give an example of a language which is not regular but is context-free and one which is not context-free but is Turing decidable. (Or another way of phasing this given a language decide whether L is regular, context-free but not regular or Turing decidable but not context-free.)
- Build a Turing Machine which does ....
- (Tricky) Is there an algorithm which decides $a^{179}b^{213} \in L(M)$, where M is a finite automata? a pushdown automata? a Turing Machine?