CMSC 303 Introduction to Theory of Computation Exam 3 Review

Here is what you should know:

1. What is a *configuration* of a Turing machine?
2. How does the input alphabet Σ and tape alphabet Γ differ for a Turing machine or do they?
3. What counts as one "computational step" on a Turing machine?
4. What does it mean for a language to be Turing-recognizable or Turing-decidable?
5. What does it mean for a language to be undecidable?
6. What is a universal Turing machine and how it changed this view on computing?
7. What does the Church-Turing thesis state about the Turing machine model of computing, and why it is important?
8. What does it mean for a language to be *undecidable*?
9. What does it mean that a Turing machine model of computing is robust?
10. Show, step by step, a Turing Machine M accepts or rejects a given string.
11. Let $L = \{0^n 1^n \mid n \geq 0\}$
    Give an implementation-level description of a TM that decides L.
12. What happens if we alter our model of a Turing machine in some way?
13. Explain what must happen for a non-deterministic Turing machine accept an input?
14. Discuss who Alan Turing was.