Material for Test 3

Focus on Chapters 11–15:

† Build/read TM
† TM Variations
† Closure and properties of recursive/r.e.
† Decidable problems
† Basic undecidable problems
† Reductions

Note in Chapter 14 we omitted proving things uncountable; in chapter 15 we omitted Post’s Correspondence Problem.

Specific Theory Questions:

• Show that nondeterministic TM are equivalent to deterministic ones
• Explain Church’s thesis and why we believe it
• Prove the connection between Printer-TMs and normal TMs
• Show that the Halting Problem is undecidable
• Show that $S_{tm}$ is not r.e.
• Various results about closure
• Various results about $\leq$