List of examinable proofs

The following is a list of the theorems from the lecture notes which you may be asked to prove on the exam. Approximately 40 percent of the marks on the exam will be for either proofs of theorems on this list or for definitions/explanations of associated notation and terminology.

Note that the proofs of some theorems build upon one another. Whenever this is the case, I indicate whether auxiliary results need to be proven or just quoted in order to get full points.

In addition, for some theorems I gave more than one proof. I will indicate which proofs one needs to know.

- Theorem 2.14 (you must prove Lemma 3.1, but you may quote Theorem 2.1).
- Theorem 3.6.
- Theorem 5.5 (you must know the first proof, and must prove Proposition 2.9).
- Theorem 7.6 (Both proofs are examinable. If asked for the first proof, you may quote Remark 6.1).
- Theorem 8.3.
- Theorem 9.12.
- Corollary 11.1 (you must prove Theorem 10.6).
- Corollary 11.3 (you must prove Theorem 11.2).
- Theorem 13.7.
- Theorem 14.4.
- Theorem 15.3.
- Theorem 17.4. You can be asked to prove one of the following:
  (i) $\Leftrightarrow$ (ii) $\Leftrightarrow$ (iii)
  (i) $\Leftrightarrow$ (iv), where you can assume that (i) $\Leftrightarrow$ (ii) $\Leftrightarrow$ (iii).
- Corollary 17.5 (you may assume Theorem 17.4(iv)).
- Theorem 18.1 (you will be required to describe Prim's algorithm, as in Lecture 17).
- Theorem 18.7.
- Theorem 19.3 (you may assume Theorem 18.7).
- Theorem 19.6.

Note: You should regard Theorem 17.4 + Corollary 17.5 as one unit. Similarly for Theorems 18.7 + 19.3.

- Theorem E.6.
- Theorem E.10 (Corollary E.9 may be stated without proof).
- Corollary E.14 (Theorem E.13 needs to be proven).
- Theorem E.23 (yo may be asked to describe the Gale-Shapley algorithm).
- Theorem E.26 (you may be asked to describe the Gale-Shapley algorithm).