List of theorems for the exam (3rd edition of course book)

Chapter 3: Convexity

Farkas' Lemma for an inequality system (3.31)
Farkas' Lemma (3.32 or 4.35; read proof in 10.10)
Characterization of convex functions in C^1 (3.48)

Chapter 4: Primal optimality conditions

The Fundamental Theorem of global optimality (4.3)
Necessary optimality conditions, C^1 case (4.22)
Necessary and sufficient global optimality conditions (4.23)
The Separation Theorem (4.29)

Chapter 5: Primal–dual optimality conditions

Karush–Kuhn–Tucker necessary conditions (5.29)
Sufficiency of the Karush–Kuhn–Tucker conditions for convex problems (5.49)

Chapter 6: Lagrangian duality

Relaxation Theorem (6.1)
Weak Duality Theorem (6.5)
Global optimality conditions in the absence of a duality gap (6.8)

Chapter 8: Linear programming models

Existence and properties of optimal solutions (8.10)

Chapter 9: The Simplex method

Finiteness of the Simplex method (9.11)

Chapter 10: LP duality and sensitivity analysis

Weak Duality Theorem (10.4)
Strong Duality Theorem (10.6)
Farkas' Lemma (10.10)
Complementarity Slackness Theorem (10.11)
Complementarity Slackness Theorem (10.12)
[(10.11) and (10.12) are proven similarly.]

Chapter 13: Constrained optimization

Global convergence of a penalty method (13.3)