Math-484 List of definitions and theorems

Material from previous exams may appear on this exam, but the focus will be on the material below.

Definitions (Midterm 2):

- posynomial *page 67*
- primal and dual geometric program *page 67,68*
- primal dual inequality for geometric programming *page 68*
- feasible point (or feasible vector) of a program (P) *page 169*
- feasible region of a program (P) *page 169*
- consistent program (P) *page 169*
- Slater point of a program (P) *page 169*
- superconsistent program (P) *page 169*
- solution of a program (P) *page 169*
- convex program (P) *page 169*
- Lagrangian $L(\mathbf{x}, \lambda)$ of a program (P)*page 182*
- complementary slackness conditions for a program (P) *page 184*
- saddle point of the Lagrangian of (P) *page 184*

Theorems and statements (Midterm 2):

(*Try to not ignore assumptions - like if a function must be continuous etc.*)
(*Proofs are only for C14 (4 credit hour) students*)

- inequality involving convex functions and convex combinations with the condition for equality *(Theorem 2.3.3)*
- arithmetic-geometric mean inequality with the condition for equality *(Theorem 2.4.1* ***with proof****)*
- Proof of the primal dual inequality for geometric programming *page 67,68* (**with proof**)
- Describe transition form unconstrained geometric program to its dual using A-G inequality (pages 67, 68). (**with proof**)
- For a geometric program, a solution to the primal implies a solution to the dual with equality in the primal-dual inequality *Theorem 2.5.2*.
- State Karush-Kuhn-Tucker Theorem (Saddle point version) *Theorem 5.2.13*
- State Karush-Kuhn-Tucker Theorem (Gradient form) *Theorem 5.2.14*