Math 341 Final Exam Preparation Sheet

The final exam is comprehensive. Use the previous preparation sheets to see what definitions to know, and what you should be able to do, from Sections 1.1 through Section 6.3. Listed here are the things you should know from Sections 6.4-6.6, 7.2-7.5 for the final exam.

Definitions to Know (in addition to all of the other definitions specified in previous study guides):

1. Partitions (p.218)
2. Upper and Lower sum (p.218)
3. Refinement (p.218)
4. Upper and Lower Integral (p.220)
5. Riemann-integrable (p.220)

Theorems to Know (be ready to give the statement and/or proof of all of the following; TWO of them are on the Final Exam):

1. State and prove the Weierstrass M-Test (Corollary 6.4.5 p.189)
2. Prove that if a power series $\sum_{n=0}^{\infty} a_n x^n$ converges absolutely at a point x_0, then it converges uniformly on the closed interval $[-|x_0|, |x_0|]$ (Theorem 6.5.2 p.192)
3. State and prove the integrability criterion for a bounded function on a compact interval (Theorem 7.2.8 p.221)
4. State and prove the Integrable Limit Function Theorem (Exercise 7.2.5 p.223 and Theorem 7.4.4 p.231)
5. State and prove part (i) of the Fundamental Theorem of Calculus (pp.234-236)
6. State and prove part (ii) of the Fundamental Theorem of Calculus (pp.234-236)

You should be able to do all of the following (in addition to those listed in previous study guides):

1. Recall and apply properties of convergence for power series
2. Find the interval where a power series converges
3. Compute a Taylor series for a given infinitely differentiable function (and determine if the Taylor series converges to the original function)
4. Construct and refine partitions, and compute upper and lower sums
5. Recall and apply the properties of the integral