Final Exam Study Guide

Below I have listed the essential skills that you will need to master in order to succeed on the final exam. Next to each skill are three practice problems, each of which has level of difficulty roughly similar to an exam question. Note that RP7 refers to the Review Problems from Chapter 7 starting on page 416, and RP9 refers to the Review Problems from Chapter 9 on page 561.

Skill 1: Calculating Laplace transforms from the definition: 7.2 (p. 360) # 2, 4; RP7 # 2
Skill 2: Finding inverse Laplace transforms: RP7 # 13, 14, 15
Skill 3: Solving IVPs using Laplace transforms: RP7 # 19, 20, 22
Skill 4: Solving a linear system with real eigenvalues: 9.5 (p. 534) # 14, 16; RP9 # 11
Skill 5: Solving a linear system with complex eigenvalues: 9.6 (p. 541) # 5, 6; RP9 # 2
Skill 6: Computing a matrix exponential: 9.8 (p. 557) # 8; RP9 # 4 (find $e^{\mathbf{A}t}$ instead of given instructions), # 16

There will be an additional question testing your conceptual knowledge, so be sure to review all definitions, important theorems, etc.