MATH 154 - PROBABILITY THEORY, SPRING 2018
ASSIGNMENT 2

Due Wednesday, February 7 at the beginning of class. Make sure to include your full name *and the list of your collaborators* (if any) with your assignment. You may discuss problems with others, but you may *not* keep a written record of your discussions. Please refer to the syllabus for details.

With regards to answering these problems, imagine that you are writing an answer to teach someone else in the class how to do the problem. In particular, you must give a complete outline for how you arrived at your answer. It is not sufficient to simply state a number or formula without providing the steps and reasoning that you used to produce the answer.

(1) Do problems 14 and 15 on p. 22 of Grimmett-Stirzaker.
(2) Do problem 20 on p. 23 of Grimmett-Stirzaker.
(3) Do problem 24 on p. 24 of Grimmett-Stirzaker (note that we keep removing balls until the urn is empty).
(4) Do problem 2 on p. 30 of Grimmett-Stirzaker.
(5) Do problem 2 on p. 32 of Grimmett-Stirzaker.
(6) Prove Lemma 2.2.11 on p. 30 of Grimmett-Stirzaker in full details.
(7) Prove that $1 + x \leq e^x \leq x + e^{x^2}$ for any real number x.

Date: February 2, 2018.