STA261 Summer 2018

Quiz 6

July 25th, 2018

First Name:_____

Last Name:_____

Student Number:_____

This quiz is out of 10 marks. Do ALL of your work on the back of the quiz, where the questions are. You can use the front for rough work, but nothing on the front will be marked, or even seen by the TAs.

If $X \sim Bernoulli(p)$ then $P(X = x) = p^x(1-p)^{1-x}$, for $x = 0, 1$.

If $X_i \overset{IID}{\sim} Bernoulli(p)$ then $\sum_{i=1}^{n} X_i \sim Binomial(n, p)$, with $E\left(\sum_{i=1}^{n} X_i\right) = np$, $Var\left(\sum_{i=1}^{n} X_i\right) = np(1-p)$.

BELOW SPACE IS FOR ROUGH WORK. NOTHING WRITTEN HERE WILL BE READ OR MARKED.

1. Let $X_i \overset{IID}{\sim} Bern(p)$ be an IID random sample from a Bernoulli distribution with parameter $p \in (0, 1)$.
   (a) (2 marks) Find an unbiased estimator for p

   (b) (8 marks) Figure out whether it is efficient