More questions whose answer you ought to know if you intend to take Exam 2

Decide whether each of the following is true or false.

(1) In order to calculate a confidence interval for an estimator, you need know the standard deviation of the estimator.

   True

(2) In order to calculate a confidence interval for an estimator, the estimator needs to be normally distributed.

   False

(3) Let $I_{90}$ denote a 90% confidence interval for some estimator. Then $I_{90}$ can be interpreted in the following way: if you repeat the experiment many times, 90% of your estimators will fall in $I_{90}$.

   False

(4) Let $I_{90}$ denote a 90% confidence interval for some estimator. Then $I_{90}$ can be interpreted in the following way: if you repeat the experiment many times, and for each experiment form $I_{90}$ in the same way, then 90% of the $I_{90}$ will contain the true value of the parameter.

   True

(5) Suppose that a null hypothesis states that $\mu = \mu_0$. In order to calculate the $P$ value of an estimator of $\mu$, you need to know the alternative hypothesis.

   True

(6) In order to calculate a $P$ value for a statistic, you need to know the distribution of that statistic.

   False (you don’t KNOW it, you ASSUME it)

(7) In order to calculate a $P$ value for a statistic, you need to assume a distribution for that statistic.

   True (see above)

(8) Suppose a null hypothesis states that a certain parameter has a certain value. Suppose you form an estimator for that parameter. If your estimate has a large $P$ value, then the null hypothesis is likely to be true.

   False

(9) Suppose a null hypothesis states that a certain parameter has a certain value. Suppose you form an estimator for that parameter. If your estimate has a small $P$ value, then the null hypothesis is likely
to be false.

True

(10) Consider an estimator for a parameter $\mu$. The $P$ value of this estimator depends not just on the null hypothesis, but on the alternative hypothesis as well.

True

(11) Suppose an estimator for $\mu$ has a $P$ value of 0.20, where the $P$ value is calculated against a 2-sided alternative. Then a 95% confidence interval around the estimator contains $\mu_0$.

True