Sampling and Sampling Distribution

1. Suppose you want to carry out a survey on all Sri Lankans. Match each option with the type of sampling.

   (Cluster Sampling, Stratified Sampling, Convenience Sampling, Simple Random Sampling)

   - You do a survey of your Sri Lankan friends on Facebook.
   - You obtain the list of all households from the Census department and randomly pick a sample of households.
   - Using the Census list of households, you separate the households into districts and select a random sample from each district.
   - Get a list of electoral divisions, select a random sample of electoral divisions and survey everyone living in each of the selected electoral divisions.

2. The sampling distribution is the distribution of the values taken by the variable of interest in your sample.

   (True/False)

3. What happens to the standard error of the sample mean as the sample gets larger and larger?

   - The standard error gets close to zero.
   - Nothing happens to the standard error.
   - Nothing happens to the standard error but the sample mean gets closer to the population mean
   - The standard error gets larger.

4. Test scores are normally distributed with mean 65 and variance 25. You take a sample of 25 students and calculate the sample average.

   Which of the following is true?

- The sample average is 65
- The standard error of the sample average is 5.
- The probability that the average of the sample is less than 65 is 0.5
- The probability that the average of the sample is greater than 65 is 0.25

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5. Which of the following is true?

   - The Central Limit Theorem states that a sampling distribution will not have the same shape as the population distribution from which it is taken.

   - The Central Limit Theorem states that the standard error of a sampling distribution of means (with N>1) will be larger than the standard deviation of the population distribution from which it is taken.

   - The Central Limit Theorem states that the mean of a sampling distribution of means will have the same mean as the population distribution from which it is taken.

   - None of the responses given here.

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6. In order to say anything about the sampling distribution of the sample proportion, the population distribution should be normal.

   (True/False)
