Your actual exam will be shorter than this study guide.

25 out of 80 College students attend culmination ceremonies when they graduate according to a recent survey. Using the 99% confidence level answer the following questions.
1. What is the **margin of error** associated with estimating the true proportion.
2. What is the confidence interval associated with **estimating the true proportion**.

A sample of 500 College students report they spend a mean of 2.8 hours on Social Media per day with a standard deviation of 1.2 hours. Using the 95% confidence level, answer the following questions.
3. Estimate the **margin of error** associated with estimating the true mean.
4. What is the confidence interval associated **with estimating the true mean**.

In a past survey, it was determined that 4% of the population will acquire the flu this year.
5. If a new study is to be created while using the 95% confidence level, **estimate the sample size** needed to be within a margin of error of $\pm 0.2\%$. Approximate your answer to the nearest whole number.

6. If no past information is known about the proportion of people who catch the flu (see problem 18), using the 95% confidence level, **estimate the sample size** need to be within a margin of error of $\pm 0.2\%$. Approximate your answer to the nearest whole number.

In a past survey, it is determined that the mean rainy days in Los Angeles is 45.6 with a standard deviation of 8.2 rainy days.
7. Using the 90% confidence level, **estimate the sample size** needed for a new study while having a margin of error of ± 5 days. Approximate your answer to the nearest whole number.

The proportion of college graduates who get jobs by networking after graduation is greater than 0.5, as reported by workforce ed. A sample of 200 college graduates reveal that 85 got jobs by networking after graduation. Use the 10% level of significance to test this claim by determining the following.
8. What is your hypothesis?
9   What are your critical value(s)?
10. Determine the test statistic approximated to the place value as the critical value.
11. What is your conclusion.

The mean amount of years' students spend in a community college is 5.5 years as mentioned by the Associated Student Union. A sample of 150 college students reveal a mean of 5.8 years with a standard deviation of 0.7 years.   Use the 5% level of significance to test this claim by determining the following.

12. What is your hypothesis?
13. What are your critical value(s)?
14. Determine the test statistic approximated to the place value as the critical value.
15. What is your conclusion.

The mean amount of coffee students drink the night before a final exam is no more than 3 cups, as determined by the Husky Store's barista. The following is a sample of the data (cups) that was collected:

$$3, 2, 3, 4, 1$$

Use the 1% level of significance to test this claim by determining the following.
16. What is your hypothesis?
17. What are your critical value(s)?
18. Determine your **sample mean** approximated to the nearest hundredths.
19. Determine the **sample standard deviation** approximated to the nearest hundredths.
20. Determine the **test statistic** approximated to the place value as the critical value.
21. What is your conclusion.

22. Use the 90% confidence level to **estimate the true mean**.
23. Use the 90% confidence level to **estimate the true variance**.
24. Use the 90% confidence level to **estimate the true standard deviation**.

The mean amount of calories men consume is not the same as the mean amount of calories women consume. A sample of 120 mean indicate a mean amount of 2600 calories consumed with a standard deviation of 245 calories, while a sample of 100 women indicate a mean amount of 2380 calories consumed with a standard deviation of 320 calories.   Use the 10% level of significance to answer the following questions to answer the following questions about testing the claim.
25. What is your hypothesis?
26. What are your critical value(s)?
27. Determine the test statistic approximated to the place value as the critical value.
28. What is your conclusion.

The proportion of men who acquire Covid 19 is the same as the proportion of women who acquire Covid 19. A sample of 820 men indicate that 12 acquired Covid 19, while a sample of 1200 women indicate that 20 acquired Covid 19. Use the 5% level of significance to answer the following questions about testing the claim.

29. What is your hypothesis?

30. What are your critical value(s)?

31. Determine the test statistic approximated to the place value as the critical value.

32. What is your conclusion.