

SS 03 Quantitative Methods: Application

Question #1 of 126

Question ID: 413359

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than \$59,000 per year. What is the test statistic given a sample of 135 newly acquired CFA charterholders with a mean starting salary of \$64,000 and a standard deviation of \$5,500?

- A) 10.56.
- B) -10.56.
- C) 0.91.

Question #2 of 126

Question ID: 413419

Which of the following technical analysis observations *most likely* represents a change in polarity?

- A) Bars on a candlestick chart change from empty to filled.
- B) Following an "X" column, a point-and-figure chart begins a new "O" column.
- C) A resistance level on a line chart is breached and later acts as a support level.

Question #3 of 126

Question ID: 413389

The table below is for five samples drawn from five separate populations. The far left columns give information on the population distribution, population variance, and sample size. The right-hand columns give three choices for the appropriate tests: z = z -statistic, and t = t -statistic. "None" means that a test statistic is not available.

Sampling From			Test Statistic Choices		
Distribution	Variance	n	One	Two	Three
Non-normal	0.75	100	z	z	z
Normal	5.60	75	z	z	z
Non-normal	n/a	15	t	t	none
Normal	n/a	18	t	t	t
Non-normal	14.3	15	z	t	none

Which set of test statistic choices (One, Two, or Three) matches the correct test statistic to the sample for all five samples?

- A) Two.
 - B) Three.
 - C) One.
-

Question #4 of 126

Question ID: 413404

A test of the population variance is equal to a hypothesized value requires the use of a test statistic that is:

- A) F-distributed.
 - B) Chi-squared distributed.
 - C) *t*-distributed.
-

Question #5 of 126

Question ID: 413427

A trend is *most likely* to continue if the price chart displays a(n):

- A) double top.
 - B) inverse head and shoulders pattern.
 - C) ascending triangle pattern.
-

Question #6 of 126

Question ID: 413417

Point and figure charts are *most likely* to illustrate:

- A) significant increases or decreases in volume.
 - B) the length of time over which trends persist.
 - C) changes of direction in price trends.
-

Question #7 of 126

Question ID: 413366

Which of the following statements about hypothesis testing is *least* accurate?

- A) A Type II error is the probability of failing to reject a null hypothesis that is not true.
- B) The significance level is the probability of making a Type I error.
- C) A Type I error is the probability of rejecting the null hypothesis when the null hypothesis is false.

Question #8 of 126

Question ID: 498741

Asset allocation using technical analysis is *most likely* to be based on:

- A) intermarket analysis.
 - B) a stochastic oscillator.
 - C) correlations within asset classes.
-

Question #9 of 126

Question ID: 413334

Jo Su believes that there should be a negative relation between returns and systematic risk. She intends to collect data on returns and systematic risk to test this theory. What is the appropriate alternative hypothesis?

- A) $H_a: \rho \neq 0$.
 - B) $H_a: \rho < 0$.
 - C) $H_a: \rho > 0$.
-

Question #10 of 126

Question ID: 413436

A technical analyst who identifies a decennial pattern and a Kondratieff wave *most likely*:

- A) associates these phenomena with U.S. presidential elections.
 - B) believes market prices move in cycles.
 - C) is analyzing a daily or intraday price chart.
-

Question #11 of 126

Question ID: 413360

Which of the following statements regarding Type I and Type II errors is *most* accurate?

- A) A Type II error is rejecting the alternative hypothesis when it is actually true.
 - B) A Type I error is rejecting the null hypothesis when it is actually true.
 - C) A Type I error is failing to reject the null hypothesis when it is actually false.
-

Question #12 of 126

Question ID: 413413

One of the assumptions of technical analysis is:

- A) all analysts have all current information.
- B) the market is efficient.
- C) supply and demand are driven by rational and irrational behavior.

Question #13 of 126

Question ID: 413372

For a two-tailed test of hypothesis involving a z-distributed test statistic and a 5% level of significance, a calculated z-statistic of 1.5 indicates that:

- A) the test is inconclusive.
- B) the null hypothesis is rejected.
- C) the null hypothesis cannot be rejected.

Question #14 of 126

Question ID: 413356

Identify the error type associated with the level of significance and the meaning of a 5 percent significance level.

Error type $\alpha = 0.05$ means there is
 a 5 percent probability
 of

- A) Type I error failing to reject a true null hypothesis
- B) Type I error rejecting a true null hypothesis
- C) Type II error rejecting a true null hypothesis

Question #15 of 126

Question ID: 434227

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001

28	1.313	1.701	2.048	2.467	2.763	3.674
29	1.311	1.699	2.045	2.462	2.756	3.659
30	1.310	1.697	2.042	2.457	2.750	3.646

In order to test whether the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken and the sample value of the computed test statistic, $t_{n-1} = 3.4$. If you choose a 5% significance level you should:

- A) reject the null hypothesis and conclude that the population mean is greater than 100.
- B) fail to reject the null hypothesis and conclude that the population mean is less than or equal to 100.
- C) fail to reject the null hypothesis and conclude that the population mean is greater than 100.

Question #16 of 126

Question ID: 448954

Which of the following is an accurate formulation of null and alternative hypotheses?

- A) Greater than for the null and less than or equal to for the alternative.
- B) Less than for the null and greater than for the alternative.
- C) Equal to for the null and not equal to for the alternative.

Question #17 of 126

Question ID: 413363

If we fail to reject the null hypothesis when it is false, what type of error has occurred?

- A) Type I.
- B) Type II.
- C) Type III.

Question #18 of 126

Question ID: 434225

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
40	1.303	1.684	2.021	2.423	2.704	3.551

Ken Wallace is interested in testing whether the average price to earnings (P/E) of firms in the retail industry is 25. Using a *t*-distributed test statistic and a 5% level of significance, the critical values for a sample of 41 firms is (are):

- A) -1.685 and 1.685.
 - B) -1.96 and 1.96.
 - C) -2.021 and 2.021.
-

Question #19 of 126

Question ID: 413392

In a test of the mean of a population, if the population variance is:

- A) unknown, a z-distributed test statistic is appropriate.
 - B) known, a t-distributed test statistic is appropriate.
 - C) known, a z-distributed test statistic is appropriate.
-

Question #20 of 126

Question ID: 413350

A researcher is testing whether the average age of employees in a large firm is statistically different from 35 years (either above or below). A sample is drawn of 250 employees and the researcher determines that the appropriate critical value for the test statistic is 1.96. The value of the computed test statistic is 4.35. Given this information, which of the following statements is *least* accurate? The test:

- A) indicates that the researcher is 95% confident that the average employee age is different than 35 years.
 - B) indicates that the researcher will reject the null hypothesis.
 - C) has a significance level of 95%.
-

Question #21 of 126

Question ID: 413340

Given the following hypothesis:

- The null hypothesis is $H_0 : \mu = 5$
- The alternative is $H_1 : \mu \neq 5$
- The mean of a sample of 17 is 7
- The population standard deviation is 2.0

What is the calculated z-statistic?

- A) 8.00.
 - B) 4.00.
 - C) 4.12.
-

Question #22 of 126

Question ID: 413416

Constructing a candlestick chart requires data on:

- A) high, low, and closing prices only.
 - B) opening, high, low, and closing prices, and trading volume.
 - C) opening, high, low, and closing prices only.
-

Question #23 of 126

Question ID: 413425

A head and shoulders pattern is *most likely* to precede a reversal in trend if:

- A) volume decreases between the left shoulder and the head, then increases between the head and the right shoulder.
 - B) the left shoulder, the head, and the right shoulder occur on increasing volume.
 - C) the left shoulder, the head, and the right shoulder occur on decreasing volume.
-

Question #24 of 126

Question ID: 413385

An analyst is testing the hypothesis that the mean excess return from a trading strategy is less than or equal to zero. The analyst reports that this hypothesis test produces a p-value of 0.034. This result *most likely* suggests that the:

- A) null hypothesis can be rejected at the 5% significance level.
 - B) best estimate of the mean excess return produced by the strategy is 3.4%.
 - C) smallest significance level at which the null hypothesis can be rejected is 6.8%.
-

Question #25 of 126

Question ID: 413423

A support level is the price range at which a technical analyst would expect the:

- A) supply of a stock to decrease substantially.
- B) demand for a stock to increase substantially.

- C) demand for a stock to decrease substantially.

Question #26 of 126

Question ID: 434222

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
18	1.330	1.734	2.101	2.552	2.878	3.922
19	1.328	1.729	2.093	2.539	2.861	3.883
20	1.325	1.725	2.086	2.528	2.845	3.850
21	1.323	1.721	2.080	2.518	2.831	3.819

In a two-tailed test of a hypothesis concerning whether a population mean is zero, Jack Olson computes a *t*-statistic of 2.7 based on a sample of 20 observations where the distribution is normal. If a 5% significance level is chosen, Olson should:

- A) fail to reject the null hypothesis that the population mean is not significantly different from zero.
- B) reject the null hypothesis and conclude that the population mean is not significantly different from zero.
- C) reject the null hypothesis and conclude that the population mean is significantly different from zero.

Question #27 of 126

Question ID: 413348

Susan Bellows is comparing the return on equity for two industries. She is convinced that the return on equity for the discount retail industry (DR) is greater than that of the luxury retail (LR) industry. What are the hypotheses for a test of her comparison of return on equity?

- A) $H_0: \mu_{DR} = \mu_{LR}$ versus $H_a: \mu_{DR} < \mu_{LR}$.
- B) $H_0: \mu_{DR} = \mu_{LR}$ versus $H_a: \mu_{DR} \neq \mu_{LR}$.
- C) $H_0: \mu_{DR} \leq \mu_{LR}$ versus $H_a: \mu_{DR} > \mu_{LR}$.

Question #28 of 126

Question ID: 599869

Simone Mak is a television network advertising executive. One of her responsibilities is selling commercial spots for a successful weekly sitcom. If the average share of viewers for this season exceeds 8.5%, she can raise the advertising rates by 50% for the next season. The population of viewer shares is normally distributed. A sample of the past 18 episodes results in a mean share of 9.6% with a standard deviation of 10.0%. If Mak is willing to make a Type 1 error with a 5% probability, which of the following statements is *most* accurate?

- A) Mak cannot charge a higher rate next season for advertising spots based on this sample.
 - B) With an unknown population variance and a small sample size, Mak cannot test a hypothesis based on her sample data.
 - C) The null hypothesis Mak needs to test is that the mean share of viewers is greater than 8.5%.
-

Question #29 of 126

Question ID: 413343

Which of the following statements about hypothesis testing is *most* accurate?

- A) If you can disprove the null hypothesis, then you have proven the alternative hypothesis.
 - B) The probability of a Type I error is equal to the significance level of the test.
 - C) The power of a test is one minus the probability of a Type I error.
-

Question #30 of 126

Question ID: 498737

For a test of the equality of the means of two normally distributed independent populations, the appropriate test statistic follows a:

- A) chi square distribution.
 - B) t-distribution.
 - C) F-distribution.
-

Question #31 of 126

Question ID: 413327

Which one of the following *best* characterizes the alternative hypothesis? The alternative hypothesis is usually the:

- A) hoped-for outcome.
 - B) hypothesis that is accepted after a statistical test is conducted.
 - C) hypothesis to be proved through statistical testing.
-

Question #32 of 126

Question ID: 413347

In the process of hypothesis testing, what is the proper order for these steps?

- A) Collect the sample and calculate the sample statistics. State the hypotheses. Specify the level of significance. Make a decision.

- B) State the hypotheses. Specify the level of significance. Collect the sample and calculate the test statistics. Make a decision.
- C) Specify the level of significance. State the hypotheses. Make a decision. Collect the sample and calculate the sample statistics.

Question #33 of 126

Question ID: 710151

Which of the following technical analysis indicators is *least accurately* described as an oscillator?

- A) Moving Average Convergence/Divergence.
- B) Bollinger bands.
- C) Relative Strength Index.

Question #34 of 126

Question ID: 434221

Student's t-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
28	1.313	1.701	2.048	2.467	2.763	3.674
29	1.311	1.699	2.045	2.462	2.756	3.659
30	1.310	1.697	2.042	2.457	2.750	3.646

In order to test if the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken and the sample value of the computed test statistic, $t_{n-1} = 1.2$. If you choose a 5% significance level you should:

- A) fail to reject the null hypothesis and conclude that the population mean is greater than 100.
- B) fail to reject the null hypothesis and conclude that the population mean is not greater than 100.
- C) reject the null hypothesis and conclude that the population mean is greater than 100.

Question #35 of 126

Question ID: 413358

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than \$58,500 per year. What is the test statistic given a sample of 175 newly acquired CFA charterholders with a mean starting salary of \$67,000 and a standard deviation of \$5,200?

- A) 21.62.

B) -1.63.

C) 1.63.

Question #36 of 126

Question ID: 413367

Which of the following statements about hypothesis testing is *most* accurate? A Type I error is the probability of:

A) rejecting a true null hypothesis.

B) failing to reject a false hypothesis.

C) rejecting a true alternative hypothesis.

Question #37 of 126

Question ID: 434226

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
18	1.330	1.734	2.101	2.552	2.878	3.922
19	1.328	1.729	2.093	2.539	2.861	3.883
20	1.325	1.725	2.086	2.528	2.845	3.850
21	1.323	1.721	2.080	2.518	2.831	3.819

In a two-tailed hypothesis test, Jack Olson observes a *t*-statistic of -1.38 based on a sample of 20 observations where the population mean is zero. If you choose a 5% significance level, you should:

A) reject the null hypothesis and conclude that the population mean is significantly different from zero.

B) reject the null hypothesis and conclude that the population mean is not significantly different from zero.

C) fail to reject the null hypothesis that the population mean is not significantly different from zero.

Question #38 of 126

Question ID: 413438

Elliott wave theory describes the typical pattern of price movements as:

- A) four waves with the direction of the trend, followed by three waves against the direction of the trend.
 - B) five waves with the direction of the trend, followed by four waves against the direction of the trend.
 - C) five waves with the direction of the trend, followed by three waves against the direction of the trend.
-

Question #39 of 126

Question ID: 413355

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than \$57,000 per year. Assuming a normal distribution, what is the test statistic given a sample of 115 newly acquired CFA charterholders with a mean starting salary of \$65,000 and a standard deviation of \$4,500?

- A) -19.06.
 - B) 1.78.
 - C) 19.06.
-

Question #40 of 126

Question ID: 413352

If the probability of a Type I error decreases, then the probability of:

- A) incorrectly rejecting the null increases.
 - B) a Type II error increases.
 - C) incorrectly accepting the null decreases.
-

Question #41 of 126

Question ID: 413407

The use of the F-distributed test statistic, $F = s_1^2 / s_2^2$, to compare the variances of two populations does NOT require which of the following?

- A) populations are normally distributed.
 - B) samples are independent of one another.
 - C) two samples are of the same size.
-

Question #42 of 126

Question ID: 413349

Which of the following statements about testing a hypothesis using a Z-test is *least* accurate?

- A) If the calculated Z-statistic lies outside the critical Z-statistic range, the null hypothesis can be rejected.
 - B) The confidence interval for a two-tailed test of a population mean at the 5% level of significance is that the sample mean falls between $\pm 1.96 \sigma/\sqrt{n}$ of the null hypothesis value.
 - C) The calculated Z-statistic determines the appropriate significance level to use.
-

Question #43 of 126

Question ID: 413331

George Appleton believes that the average return on equity in the amusement industry, μ , is greater than 10%. What is the null (H_0) and alternative (H_a) hypothesis for his study?

- A) $H_0: \leq 0.10$ versus $H_a: > 0.10$.
 - B) $H_0: > 0.10$ versus $H_a: < 0.10$.
 - C) $H_0: > 0.10$ versus $H_a: \leq 0.10$.
-

Question #44 of 126

Question ID: 710150

A technical analyst who wishes to observe the state of capital flows in the financial markets is *least likely* to examine:

- A) the short interest ratio.
 - B) margin debt.
 - C) the cash position of mutual funds.
-

Question #45 of 126

Question ID: 413382

Of the following explanations, which is *least likely* to be a valid explanation for divergence between statistical significance and economic significance?

- A) Transactions costs.
 - B) Data errors.
 - C) Adjustment for risk.
-

Question #46 of 126

Question ID: 413433

Which of the following would a technical analyst *most likely* interpret as a "buy" signal?

- A) 20-day moving average crosses below a 100-day moving average.
 - B) 10-day moving average crosses above a 60-day moving average.
 - C) 30-day moving average crosses above a 5-day moving average.
-

Question #47 of 126

Question ID: 498738

For a test of the equality of the mean returns of two non-independent populations based on a sample, the numerator of the appropriate test statistic is the:

- A) average difference between pairs of returns.
 - B) larger of the two sample means.
 - C) difference between the sample means for each population.
-

Question #48 of 126

Question ID: 413376

A bottler of iced tea wishes to ensure that an average of 16 ounces of tea is in each bottle. In order to analyze the accuracy of the bottling process, a random sample of 150 bottles is taken. Using a t -distributed test statistic of -1.09 and a 5% level of significance, the bottler should:

- A) not reject the null hypothesis and conclude that bottles do not contain an average of 16 ounces of tea.
 - B) not reject the null hypothesis and conclude that bottles contain an average 16 ounces of tea.
 - C) reject the null hypothesis and conclude that bottles contain an average 16 ounces of tea.
-

Question #49 of 126

Question ID: 413325

James Ambercrombie believes that the average return on equity in the utility industry, μ , is greater than 10%. What is null (H_0) and alternative (H_a) hypothesis for his study?

- A) $H_0: \mu \geq 0.10$ versus $H_a: \mu < 0.10$.
 - B) $H_0: \mu \leq 0.10$ versus $H_a: \mu > 0.10$.
 - C) $H_0: \mu = 0.10$ versus $H_a: \mu \neq 0.10$.
-

Question #50 of 126

Question ID: 413409

Which of the following statements about parametric and nonparametric tests is *least* accurate?

- A) Nonparametric tests rely on population parameters.
 - B) The test of the mean of the differences is used when performing a paired comparison.
 - C) The test of the difference in means is used when you are comparing means from two independent samples.
-

Question #51 of 126

Question ID: 413393

Which of the following statements about test statistics is *least* accurate?

- A) In a test of the population mean, if the population variance is unknown, we should use a t -distributed test statistic.
 - B) In the case of a test of the difference in means of two independent samples, we use a t -distributed test statistic.
 - C) In a test of the population mean, if the population variance is unknown and the sample is small, we should use a z -distributed test statistic.
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Question #52 of 126

Question ID: 683837

Kyra Mosby, M.D., has a patient who is complaining of severe abdominal pain. Based on an examination and the results from laboratory tests, Mosby states the following diagnosis hypothesis: H_0 : Appendicitis, H_A : Not Appendicitis. Dr. Mosby removes the patient's appendix and the patient still complains of pain. Subsequent tests show that the gall bladder was causing the problem. By taking out the patient's appendix, Dr. Mosby:

- A) is correct.
 - B) made a Type II error.
 - C) made a Type I error.
-

Question #53 of 126

Question ID: 413374

For a t -distributed test statistic with 30 degrees of freedom, a one-tailed test specifying the parameter greater than some value and a 95% confidence level, the critical value is:

- A) 1.697.
 - B) 1.640.
 - C) 2.042.
-

Question #54 of 126

Question ID: 413344

Which of the following is the correct sequence of events for testing a hypothesis?

- A) State the hypothesis, formulate the decision rule, select the level of significance, compute the test statistic, and make a decision.
 - B) State the hypothesis, select the level of significance, formulate the decision rule, compute the test statistic, and make a decision.
 - C) State the hypothesis, select the level of significance, compute the test statistic, formulate the decision rule, and make a decision.
-

Question #55 of 126

Question ID: 434220

A researcher is testing the hypothesis that a population mean is equal to zero. From a sample with 64 observations, the researcher calculates a sample mean of -2.5 and a sample standard deviation of 8.0. At which levels of significance should the researcher reject the hypothesis?

1% significance 5% significance 10% significance

- | | | |
|-------------------|----------------|----------------|
| A) Reject | Fail to reject | Fail to reject |
| B) Fail to reject | Fail to reject | Reject |
| C) Fail to reject | Reject | Reject |
-

Question #56 of 126

Question ID: 413388

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than \$62,500 per year. What is the test statistic given a sample of 125 newly acquired CFA charterholders with a mean starting salary of \$65,000 and a standard deviation of \$2,600?

- A) 0.96.
- B) -10.75.
- C) 10.75.

Question #57 of 126

Question ID: 413420

The trend line for a stock in an uptrend is constructed by drawing a straight line through the:

- A) highs.
 - B) periodic averages.
 - C) lows.
-

Question #58 of 126

Question ID: 498739

An analyst has calculated the sample variances for two random samples from independent normally distributed populations. The test statistic for the hypothesis that the true population variances are equal is a(n):

- A) t-statistic.
 - B) chi square statistic.
 - C) *F-statistic*.
-

Question #59 of 126

Question ID: 413397

A test of a hypothesis that the means of two normally distributed populations are equal based on two independent random samples:

- A) is based on a Chi Square statistic.
 - B) is done with a t-statistic.
 - C) is a paired-comparisons test.
-

Question #60 of 126

Question ID: 413396

Brandee Shoffield is the public relations manager for Night Train Express, a local sports team. Shoffield is trying to sell advertising spots and wants to know if she can say with 90% confidence that average home game attendance is greater than 3,000. Attendance is approximately normally distributed. A sample of the attendance at 15 home games results in a mean of 3,150 and a standard deviation of 450. Which of the following statements is *most* accurate?

- A) With an unknown population variance and a small sample size, no statistic is available to test Shoffield's hypothesis.
 - B) Shoffield should use a two-tailed Z-test.
 - C) The calculated test statistic is 1.291.
-

Question #61 of 126

Question ID: 413400

Joe Sutton is evaluating the effects of the 1987 market decline on the volume of trading. Specifically, he wants to test whether the decline affected trading volume. He selected a sample of 500 companies and collected data on the total annual volume for one year prior to the decline and for one year following the decline. What is the set of hypotheses that Sutton is testing?

- A) $H_0: \mu_d \neq \mu_{d0}$ versus $H_a: \mu_d = \mu_{d0}$.
 - B) $H_0: \mu_d = \mu_{d0}$ versus $H_a: \mu_d > \mu_{d0}$.
 - C) $H_0: \mu_d = \mu_{d0}$ versus $H_a: \mu_d \neq \mu_{d0}$.
-

Question #62 of 126

Question ID: 710147

An analyst wants to determine whether the monthly returns on two stocks over the last year were the same or not. What test should she use, assuming returns are normally distributed?

- A) Difference in means test.
 - B) Chi-square test.
 - C) Paired comparisons test.
-

Question #63 of 126

Question ID: 413406

The variance of 100 daily stock returns for Stock A is 0.0078. The variance of 90 daily stock returns for Stock B is 0.0083. Using a 5% level of significance, the critical value for this test is 1.61. The *most* appropriate conclusion regarding whether the variance of Stock A is different from the variance of Stock B is that the:

- A) variances are equal.
 - B) variances are not equal.
 - C) variance of Stock B is significantly greater than the variance of Stock A.
-

Question #64 of 126

Question ID: 413411

Which of the following is *least likely* an underlying assumption of technical analysis?

- A) Markets are efficient and all known information is reflected in prices.
 - B) Prices are determined by supply and demand.
 - C) Supply and demand for a stock is driven by rational and irrational behavior.
-

Question #65 of 126

Question ID: 413381

Which of the following statements about statistical results is *most* accurate?

- A) If a result is statistically significant and economically meaningful, the relationship will continue into the future.
 - B) If a result is statistically significant, it must also be economically meaningful.
 - C) A result may be statistically significant, but may not be economically meaningful.
-

Question #66 of 126

Question ID: 413437

Technical analysts who employ Elliott Wave Theory are *most likely* to use Fibonacci numbers to forecast the:

- A) number of subwaves within a larger wave.
 - B) timing of wave direction changes.
 - C) sizes of waves.
-

Question #67 of 126

Question ID: 413326

Jill Woodall believes that the average return on equity in the retail industry, μ , is less than 15%. What is null (H_0) and alternative (H_a) hypothesis for her study?

- A) $H_0: \mu \geq 0.15$ versus $H_a: \mu < 0.15$.
 - B) $H_0: \mu < 0.15$ versus $H_a: \mu = 0.15$.
 - C) $H_0: \mu = 0.15$ versus $H_a: \mu \neq 0.15$.
-

Question #68 of 126

Question ID: 413332

Brian Ci believes that the average return on equity in the airline industry, μ , is less than 5%. What are the appropriate null (H_0)

and alternative (H_a) hypotheses to test this belief?

- A) $H_0: \mu < 0.05$ versus $H_a: \mu > 0.05$.
 - B) $H_0: \mu \geq 0.05$ versus $H_a: \mu < 0.05$.
 - C) $H_0: \mu < 0.05$ versus $H_a: \mu \geq 0.05$.
-

Question #69 of 126

Question ID: 413403

The test of the equality of the variances of two normally distributed populations requires the use of a test statistic that is:

- A) Chi-squared distributed.
 - B) F-distributed.
 - C) z-distributed.
-

Question #70 of 126

Question ID: 413339

What kind of test is being used for the following hypothesis and what would a z-statistic of 1.68 tell us about a hypothesis with the appropriate test and a level of significance of 5%, respectively?

$$H_0: B \leq 0$$

$$H_A: B > 0$$

- A) One-tailed test; reject the null.
 - B) One-tailed test; fail to reject the null.
 - C) Two-tailed test; fail to reject the null.
-

Question #71 of 126

Question ID: 448953

Which of the following statements *least accurately* describes the procedure for testing a hypothesis?

- A) Develop a hypothesis, compute the test statistic, and make a decision.
 - B) Select the level of significance, formulate the decision rule, and make a decision.
 - C) Compute the sample value of the test statistic, set up a rejection (critical) region, and make a decision.
-

Question #72 of 126

Question ID: 413379

An analyst calculates that the mean of a sample of 200 observations is 5. The analyst wants to determine whether the calculated mean, which has a standard error of the sample statistic of 1, is significantly different from 7 at the 5% level of significance.

Which of the following statements is *least* accurate?:

- A) The mean observation is significantly different from 7, because the calculated Z-statistic is less than the critical Z-statistic.
 - B) The alternative hypothesis would be H_a : mean > 7.
 - C) The null hypothesis would be: H_0 : mean = 7.
-

Question #73 of 126

Question ID: 413440

The *most* appropriate tool to use for intermarket analysis of two different asset classes is a:

- A) relative strength chart.
 - B) stochastic oscillator.
 - C) moving average convergence/divergence chart.
-

Question #74 of 126

Question ID: 710146

Which of the following statements about hypothesis testing is *most* accurate?

- A) A hypothesis that the population mean is less than or equal to 5 should be rejected when the critical Z-statistic is greater than the sample Z-statistic.
 - B) A Type I error is rejecting the null hypothesis when it is true, and a Type II error is rejecting the alternative hypothesis when it is true.
 - C) A hypothesized mean of 3, a sample mean of 6, and a standard error of the sampling means of 2 give a sample Z-statistic of 1.5.
-

Question #75 of 126

Question ID: 710149

After trending upward for several weeks, the price of Vibex, Inc. stock reaches a high of \$54 before falling to \$48 over the following week. The stock then rallies to \$57 but then declines again to \$48. The following week, the stock increases to \$52 on light volume before ending the week at \$46. A technical analyst observing this pattern would *most likely* describe it as a:

- A) continuation pattern.
 - B) head-and-shoulders pattern.
 - C) triangle pattern.
-

Question #76 of 126

Question ID: 413337

In order to test whether the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken and the sample value of the computed test statistic, $t_{n-1} = 3.4$. The null and alternative hypotheses are:

- A) $H_0: \mu \leq 100$; $H_a: \mu > 100$.
 - B) $H_0: X \leq 100$; $H_a: X > 100$.
 - C) $H_0: \mu = 100$; $H_a: \mu \neq 100$.
-

Question #77 of 126

Question ID: 413383

A p-value of 0.02% means that a researcher:

- A) can reject the null hypothesis at both the 5% and 1% significance levels.
 - B) cannot reject the null hypothesis at either the 5% or 1% significance levels.
 - C) can reject the null hypothesis at the 5% significance level but cannot reject at the 1% significance level.
-

Question #78 of 126

Question ID: 413342

An analyst conducts a two-tailed z-test to determine if small cap returns are significantly different from 10%. The sample size was 200. The computed z-statistic is 2.3. Using a 5% level of significance, which statement is *most* accurate?

- A) You cannot determine what to do with the information given.
 - B) Fail to reject the null hypothesis and conclude that small cap returns are close enough to 10% that we cannot say they are significantly different from 10%.
 - C) Reject the null hypothesis and conclude that small cap returns are significantly different from 10%.
-

Question #79 of 126

Question ID: 413333

Jill Woodall believes that the average return on equity in the retail industry, μ , is less than 15%. What are the null (H_0) and alternative (H_a) hypotheses for her study?

- A) $H_0: \mu \geq 0.15$ versus $H_a: \mu < 0.15$.
 - B) $H_0: \mu \leq 0.15$ versus $H_a: \mu > 0.15$.
 - C) $H_0: \mu < 0.15$ versus $H_a: \mu \geq 0.15$.
-

Question #80 of 126

Question ID: 413410

The advantages of using technical analysis include:

- A) the incorporation of psychological reasons behind price changes.
 - B) complete objectivity.
 - C) ease in interpreting reasons behind stock price trends.
-

Question #81 of 126

Question ID: 413435

Technical analysts who use cycles define a Kondratieff wave as a cycle of:

- A) 18 years.
 - B) 10 years.
 - C) 54 years.
-

Question #82 of 126

Question ID: 413373

Ryan McKeeler and Howard Hu, two junior statisticians, were discussing the relation between confidence intervals and hypothesis tests. During their discussion each of them made the following statement:

McKeeler: A confidence interval for a two-tailed hypothesis test is calculated as adding and subtracting the product of the standard error and the critical value from the sample statistic. For example, for a level of confidence of 68%, there is a 32% probability that the true population parameter is contained in the interval.

Hu: A 99% confidence interval uses a critical value associated with a given distribution at the 1% level of significance. A hypothesis test would compare a calculated test statistic to that critical value. As such, the confidence interval is the range for the test statistic within which a researcher would not reject the null hypothesis for a two-tailed hypothesis test about the value of the population mean of the random variable.

With respect to the statements made by McKeeler and Hu:

- A) both are correct.
- B) both are incorrect.
- C) only one is correct.

Question #83 of 126

Question ID: 413375

The power of the test is:

- A) equal to the level of confidence.
- B) the probability of rejecting a true null hypothesis.
- C) the probability of rejecting a false null hypothesis.

Question #84 of 126

Question ID: 434224

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005
Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
24	1.318	1.711	2.064	2.492	2.797	3.745
25	1.316	1.708	2.060	2.485	2.787	3.725

A pitching machine is calibrated to deliver a fastball at a speed of 98 miles per hour. Every day, a technician samples the speed of twenty-five fastballs in order to determine if the machine needs adjustment. Today, the sample showed a mean speed of 99 miles per hour with a standard deviation of 1.75 miles per hour. Assume the population is normally distributed. At a 95% confidence level, what is the *t*-value in relation to the critical value?

- A) The *t*-value exceeds the critical value by 1.5 standard deviations.
- B) The critical value exceeds the *t*-value by 1.3 standard deviations.
- C) The *t*-value exceeds the critical value by 0.8 standard deviations.

Question #85 of 126

Question ID: 434230

Student's *t*-Distribution

Level of Significance for One-Tailed Test						
df	0.100	0.050	0.025	0.01	0.005	0.0005

Level of Significance for Two-Tailed Test						
df	0.20	0.10	0.05	0.02	0.01	0.001
10	1.372	1.812	2.228	2.764	3.169	4.587
11	1.363	1.796	2.201	2.718	3.106	4.437
12	1.356	1.782	2.179	2.681	3.055	4.318
22	1.321	1.717	2.074	2.508	2.819	3.792
23	1.319	1.714	2.069	2.500	2.807	3.768
24	1.318	1.711	2.064	2.492	2.797	3.745

Roy Fisher, CFA, wants to determine whether there is a significant difference, at the 5% significance level, between the mean monthly return on Stock GHI and the mean monthly return on Stock JKL. Fisher assumes the variances of the two stocks' returns are equal. Using the last 12 months of returns on each stock, Fisher calculates a t -statistic of 2.0 for a test of equality of means. Based on this result, Fisher's test:

- A) rejects the null hypothesis, and Fisher can conclude that the means are equal.
- B) rejects the null hypothesis, and Fisher can conclude that the means are not equal.
- C) fails to reject the null hypothesis.

Question #86 of 126

Question ID: 413412

A technical analyst believes stock prices are primarily driven by:

- A) market supply and demand forces.
- B) specialist trading.
- C) the random walk hypothesis.

Question #87 of 126

Question ID: 413428

A trend is *most likely* to reverse if the price chart displays a:

- A) descending triangle pattern.
- B) head and shoulders pattern.
- C) rectangle pattern.

Question #88 of 126

Question ID: 413357

A survey is taken to determine whether the average starting salaries of CFA charterholders is equal to or greater than \$54,000 per year. Assuming a normal distribution, what is the test statistic given a sample of 75 newly acquired CFA charterholders with a mean starting salary of \$57,000 and a standard deviation of \$1,300?

- A) 19.99.
 - B) 2.31.
 - C) -19.99.
-

Question #89 of 126

Question ID: 498740

A test of whether a mutual fund's performance rank in one period provides information about the fund's performance rank in a subsequent period is *best* described as a:

- A) nonparametric test.
 - B) parametric test.
 - C) mean-rank test.
-

Question #90 of 126

Question ID: 413353

Which of the following statements about hypothesis testing is *most* accurate? A Type II error is the probability of:

- A) rejecting a true null hypothesis.
 - B) rejecting a true alternative hypothesis.
 - C) failing to reject a false null hypothesis.
-

Question #91 of 126

Question ID: 413346

The first step in the process of hypothesis testing is:

- A) selecting the test statistic.
 - B) the collection of the sample.
 - C) to state the hypotheses.
-

Question #92 of 126

Question ID: 413415

A technical analysis chart that illustrates only the closing prices of a security on each trading day is *best* described as a:

- A) point and figure chart.
 - B) line chart.
 - C) bar chart.
-

Question #93 of 126

Question ID: 485760

A manager wants to test whether two normally distributed and independent populations have equal variances. The appropriate test statistic for this test is a:

- A) t-statistic.
 - B) F-statistic.
 - C) chi-square statistic.
-

Question #94 of 126

Question ID: 413368

Which of the following statements about hypothesis testing is *least* accurate?

- A) If the alternative hypothesis is $H_a: \mu > \mu_0$, a two-tailed test is appropriate.
 - B) The null hypothesis is a statement about the value of a population parameter.
 - C) A Type II error is failing to reject a false null hypothesis.
-

Question #95 of 126

Question ID: 632561

An Elliott wave theorist who forecasts prices based on Fibonacci ratios is *most likely* to predict that a wave will be:

- A) five-eighths the size of the previous wave.
 - B) four-ninths the size of the previous wave.
 - C) six-elevenths the size of the previous wave.
-

Question #96 of 126

Question ID: 413401

In order to test if Stock A is more volatile than Stock B, prices of both stocks are observed to construct the sample variance of the two stocks. The appropriate test statistics to carry out the test is the:

- A) t test.
- B) Chi-square test.

C) F test.

Question #97 of 126

Question ID: 457612

F-Table, Critical Values, 5 Percent in Upper Tail

Degrees of freedom for the numerator along top row

Degrees of freedom for the denominator along side row

	10	12	15	20	24	30
25	2.24	2.16	2.09	2.01	1.96	1.92
30	2.16	2.09	2.01	1.93	1.89	1.84
40	2.08	2.00	1.92	1.84	1.79	1.74

Abby Ness is an analyst for a firm that specializes in evaluating firms involved in mineral extraction. Ness believes that the earnings of copper extracting firms are more volatile than those of bauxite extraction firms. In order to test this, Ness examines the volatility of returns for 31 copper firms and 25 bauxite firms. The standard deviation of earnings for copper firms was \$2.69, while the standard deviation of earnings for bauxite firms was \$2.92. Ness's Null Hypothesis is $\sigma_1^2 = \sigma_2^2$. Based on the samples, can we reject the null hypothesis at a 90% confidence level using an F-statistic? Null is:

- A) rejected. The F-value exceeds the critical value by 0.849.
- B) not rejected.
- C) rejected. The F-value exceeds the critical value by 0.71.

Question #98 of 126

Question ID: 529153

Given a normally distributed random variable with a mean of 10% and a standard deviation of 14%, what is a 95% confidence interval for the return next year?

- A) -17.44% to 37.44%.
- B) -4.00% to 24.00%.
- C) -17.00% to 38.00%.

Question #99 of 126

Question ID: 413405

Which of the following statements about the variance of a normally distributed population is *least* accurate?

- A) The Chi-squared distribution is a symmetric distribution.
- B) A test of whether the variance of a normally distributed population is equal to some value σ_0^2 , the hypotheses are: $H_0: \sigma^2 = \sigma_0^2$, versus $H_a: \sigma^2 \neq \sigma_0^2$.

- C) The test of whether the population variance equals σ_0^2 requires the use of a Chi-squared distributed test statistic, $[(n - 1)s^2] / \sigma_0^2$.
-

Question #100 of 126

Question ID: 413354

If a two-tailed hypothesis test has a 5% probability of rejecting the null hypothesis when the null is true, it is *most likely* that the:

- A) significance level of the test is 5%.
 - B) probability of a Type I error is 2.5%.
 - C) power of the test is 95%.
-

Question #101 of 126

Question ID: 413414

One of the underlying assumptions of technical analysis is that supply and demand is driven by:

- A) rational behavior only.
 - B) rational behavior during calm markets and irrational behavior during volatile markets.
 - C) both rational and irrational behavior.
-

Question #102 of 126

Question ID: 413323

Robert Patterson, an options trader, believes that the return on options trading is higher on Mondays than on other days. In order to test his theory, he formulates a null hypothesis. Which of the following would be an appropriate null hypothesis? Returns on Mondays are:

- A) less than returns on other days.
 - B) not greater than returns on other days.
 - C) greater than returns on other days.
-

Question #103 of 126

Question ID: 473662

An analyst is testing to see if the mean of a population is less than 133. A random sample of 50 observations had a mean of 130. Assume a standard deviation of 5. The test is to be made at the 1% level of significance. The analyst should:

- A) reject the null hypothesis.
 - B) accept the null hypothesis.
 - C) fail to reject the null hypothesis.
-

Question #104 of 126

Question ID: 413361

A Type I error:

- A) rejects a true null hypothesis.
 - B) rejects a false null hypothesis.
 - C) fails to reject a false null hypothesis.
-

Question #105 of 126

Question ID: 484168

The point where technicians expect a substantial increase in the demand for a stock to occur is called a:

- A) support level.
 - B) break-out point.
 - C) resistance level.
-

Question #106 of 126

Question ID: 413377

If the null hypothesis is innocence, then the statement "It is better that the guilty go free, than the innocent are punished" is an example of preferring a:

- A) higher level of significance.
 - B) type I error over a type II error.
 - C) type II error over a type I error.
-

Question #107 of 126

Question ID: 413328

Which one of the following is the *most* appropriate set of hypotheses to use when a researcher is trying to demonstrate that a return is greater than the risk-free rate? The null hypothesis is framed as a:

- A) less than statement and the alternative hypothesis is framed as a greater than or equal to statement.
- B) greater than statement and the alternative hypothesis is framed as a less than or equal to statement.

C) less than or equal to statement and the alternative hypothesis is framed as a greater than statement.

Question #108 of 126

Question ID: 413429

Closing prices for a commodity were 21.4 on Monday, 22.2 on Tuesday, 21.8 on Wednesday, 22.4 on Thursday, and 23.2 on Friday. The five-day standard deviation is 0.7 and the 30-day standard deviation is 1.0. On Friday, five-day Bollinger bands using two standard deviations are *closest* to:

- A) 23.6 and 20.8.
 - B) 24.2 and 20.2.
 - C) 24.6 and 21.8.
-

Question #109 of 126

Question ID: 413441

When technical analysts say a stock has good "relative strength," they mean the:

- A) ratio of the price of the stock to a market index has trended upward.
 - B) recent trading volume in the stock has exceeded the normal trading volume.
 - C) stock has performed well compared to other stocks in the same risk category as measured by beta.
-

Question #110 of 126

Question ID: 413408

Which of the following statements about parametric and nonparametric tests is *least* accurate?

- A) Parametric tests are most appropriate when a population is heavily skewed.
 - B) Nonparametric tests are often used in conjunction with parametric tests.
 - C) Nonparametric tests have fewer assumptions than parametric tests.
-

Question #111 of 126

Question ID: 413370

Ron Jacobi, manager with the Toulee Department of Natural Resources, is responsible for setting catch-and-release limits for Lake Norby, a large and popular fishing lake. For the last two months he has been sampling to determine whether the average length of Northern Pike in the lake exceeds 18 inches (using a significance level of 0.05). Assume that the p-value is 0.08. In concluding that the average size of the fish exceeds 18 inches, Jacobi:

- A) is correct.

- B) makes a Type I error.
 - C) makes a Type II error.
-

Question #112 of 126

Question ID: 413395

In order to test if the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken. The sample value of the computed z-statistic = 3.4. The appropriate decision at a 5% significance level is to:

- A) reject the null hypothesis and conclude that the population mean is equal to 100.
 - B) reject the null hypothesis and conclude that the population mean is not equal to 100.
 - C) reject the null hypotheses and conclude that the population mean is greater than 100.
-

Question #113 of 126

Question ID: 413384

A hypothesis test has a p -value of 1.96%. An analyst should reject the null hypothesis at a significance level of:

- A) 3%, but not at a significance level of 1%.
 - B) 4%, but not at a significance level of 2%.
 - C) 6%, but not at a significance level of 4%.
-

Question #114 of 126

Question ID: 413421

The resistance level signifies the price at which a stock's supply would be expected to:

- A) decrease substantially.
 - B) cause the stock price to "break out".
 - C) increase substantially.
-

Question #115 of 126

Question ID: 434228

Cumulative Z-Table

z	0.04	0.05	0.06	0.07	0.08	0.09
1.2	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441

1.6	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
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Maria Huffman is the Vice President of Human Resources for a large regional car rental company. Last year, she hired Graham Brickley as Manager of Employee Retention. Part of the compensation package was the chance to earn one of the following two bonuses: if Brickley can reduce turnover to less than 30%, he will receive a 25% bonus. If he can reduce turnover to less than 25%, he will receive a 50% bonus (using a significance level of 10%). The population of turnover rates is normally distributed. The population standard deviation of turnover rates is 1.5%. A recent sample of 100 branch offices resulted in an average turnover rate of 24.2%. Which of the following statements is *most* accurate?

- A) For the 50% bonus level, the test statistic is -5.33 and Huffman should give Brickley a 50% bonus.
- B) Brickley should not receive either bonus.
- C) For the 50% bonus level, the critical value is -1.65 and Huffman should give Brickley a 50% bonus.

Question #116 of 126

Question ID: 413431

Bollinger bands are drawn based on the:

- A) high and low prices in a recent period.
- B) standard deviation of recent price changes.
- C) difference between two smoothed moving averages.

Question #117 of 126

Question ID: 498736

A researcher determines that the mean annual return over the last 10 years for an investment strategy was greater than that of an index portfolio of equal risk with a statistical significance level of 1%. To determine whether the abnormal portfolio returns to the strategy are economically meaningful, it would be *most appropriate* to additionally account for:

- A) only the transaction costs of the strategy.
- B) the transaction costs, tax effects, and risk of the strategy.
- C) only the transaction costs and tax effects of the strategy.

Question #118 of 126

Question ID: 710148

Relative strength analysis involves examining:

- A) asset returns and index returns.
- B) periodic price and volume data.
- C) a point-and-figure chart.

Question #119 of 126

Question ID: 413341

An analyst conducts a two-tailed test to determine if mean earnings estimates are significantly different from reported earnings. The sample size is greater than 25 and the computed test statistic is 1.25. Using a 5% significance level, which of the following statements is *most* accurate?

- A) To test the null hypothesis, the analyst must determine the exact sample size and calculate the degrees of freedom for the test.
 - B) The analyst should reject the null hypothesis and conclude that the earnings estimates are significantly different from reported earnings.
 - C) The analyst should fail to reject the null hypothesis and conclude that the earnings estimates are not significantly different from reported earnings.
-

Question #120 of 126

Question ID: 413335

If the null hypothesis is $H_0: \rho \leq 0$, what is the appropriate alternative hypothesis?

- A) $H_a: \rho > 0$.
 - B) $H_a: \rho \neq 0$.
 - C) $H_a: \rho < 0$.
-

Question #121 of 126

Question ID: 413362

Which of the following statements regarding hypothesis testing is *least* accurate?

- A) A type II error is the acceptance of a hypothesis that is actually false.
 - B) The significance level is the risk of making a type I error.
 - C) A type I error is acceptance of a hypothesis that is actually false.
-

Question #122 of 126

Question ID: 434223

A Type II error:

- A) fails to reject a true null hypothesis.
 - B) rejects a true null hypothesis.
 - C) fails to reject a false null hypothesis.
-

Question #123 of 126

Question ID: 413426

An inverse head and shoulders pattern *most likely* indicates:

- A) the reversal of an uptrend.
 - B) the continuation of a downtrend.
 - C) the reversal of a downtrend.
-

Question #124 of 126

Question ID: 413378

A goal of an "innocent until proven guilty" justice system is to place a higher priority on:

- A) the null hypothesis.
 - B) avoiding type II errors.
 - C) avoiding type I errors.
-

Question #125 of 126

Question ID: 632560

A technical analyst examining the past 12 months of daily price data for evidence of cycles is *most likely* to identify:

- A) Kondratieff waves.
 - B) decennial patterns.
 - C) Elliott wave patterns.
-

Question #126 of 126

Question ID: 413365

John Jenkins, CFA, is performing a study on the behavior of the mean P/E ratio for a sample of small-cap companies. Which of the following statements is *most* accurate?

- A) A Type I error represents the failure to reject the null hypothesis when it is, in truth, false.
- B) The significance level of the test represents the probability of making a Type I error.
- C) One minus the confidence level of the test represents the probability of making a Type II error.