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MTH 302
Chapter No 2

- 1 The number of FedEx shipping centers in each of 20 randomly-chosen cities would be ordinal scale data.
A) True
B) False
- 2 A categorical (qualitative) variable has values that are described in words rather than numbers.
A) True
B) False
- 3 Temperature (measured in degrees Fahrenheit) is an example of ratio data because it has a zero.
A) True
B) False
- 4 If you randomly sample 50 students about their television viewing habits at one point in time, the data collected would be referred to as time series data.
A) True
B) False
- 5 Internet surveys posted on popular websites such as MSN.com suffer from selection bias.
A) True
B) False
- 6 Which statement is correct?
A) Class standing (freshman, sophomore, junior, senior) would be ratio data.
B) Sampling without replacement introduces bias in our estimates.
C) In a random number table, every digit is equally likely to occur.
D) Focus groups usually work best without a trained moderator.
- 7 Which variable is least likely to be regarded as ratio data?
A) Length of time required for a randomly-chosen vehicle to cross a toll bridge (minutes).
B) Weight of a randomly-chosen casting in a foundry (kilograms).
C) Number of fatalities in a randomly-chosen airline disaster (persons).

D) Supervisor's rating of a randomly-chosen employee's performance (Likert scale).

8 Which of the following is quantitative data?

- A) Your gender.
- B) The brand of cell phone you own.
- C) Whether or not you have an American Express card.

D) The fuel economy (MPG) of your car.

9 Your rating of the food served on your most recent airline flight (using a scale of 0 = gross, 1 = decent, 2 = yummy) is _____ data.

A) nominal

B) ordinal

C) interval

D) ratio

10 Which statement is correct?

A) Likert scales are interval only if scale distances are meaningful.

B) Cross-sectional data are measured over time (e.g., by year, month, etc.).

C) A census is preferable to a sample for most business problems.

D) Stratified samples are usually cheaper than other methods.

11 Which is most nearly correct regarding sampling error?

A) It can be eliminated by increasing the sample size.

B) It can be eliminated by using Excel's =RANDBETWEEN function.

C) It can be eliminated by utilizing systematic random sampling.

D) It cannot be eliminated because of the nature of sampling.

12 A hospital selects thirty patient folders from a filing cabinet containing 812 patient folders by choosing every 27th patient folder. Which sampling method is this?

A) Simple random sample.

B) Systematic sample.

C) Stratified sample.

D) Cluster sample.

13 From its 32 regions, the Federal Aviation Administration randomly selects 5 regions, and then randomly audits 20 departing commercial flights in each region for compliance with legal fuel and weight requirements. This most nearly resembles

A) simple random sampling.

B) systematic random sampling.

C) two-stage cluster sampling.

D) judgment sampling

14 Which statement is false?

A) Random dialing phone surveys have low response and are poorly targeted.

B) Selection bias means that many respondents dislike the interviewer.

C) Simple random sampling requires a list of the population.

D) Web surveys are economical but suffer from non-response bias.

15 Professor Hardtack chose a sample of 7 students from his statistics class of 35 students by picking every student who was wearing red that day. Which kind of sample is this?

A) Simple random sample.

B) Judgment sample.

C) Systematic sample.

D) Convenience sample.

Multiple Choice Quiz

1 If you decrease the size of the samples (i.e., the subgroup size) for an \bar{x} chart, it is necessary to recalculate your control limits to reflect wider limits.

A) True B) False

2 A p-chart is a type of process control chart that can be used for plotting the proportion of non-conforming sampled items.

A) True

B) False

3 An in-control process will always exhibit special cause variation, which is not a reason for concern.

A) True

B) False

4 If the C_p index is unacceptable, the C_{pk} index may nonetheless indicate a capable process.

A) True

B) False

5 A moving range (MR) chart is appropriate to monitor variation when every item is being inspected ($n = 1$) since the range (R) cannot be calculated.

A) True

B) False

6 A process can be considered in a state of control even if one sample mean is 2.1 standard deviations above the mean.

A) True

B) False

7 W. Edwards Deming

A) taught quality control techniques to Japanese companies during the 1950's.

B) would have been very influential but for his very short life.

C) invented control charts and proposed the ISO 9000 standard.

D) suggested that most quality problems could be blamed on labor.

8 Which is an appropriate step in continuous quality improvement?

A) Taking measurements on a variable and keeping careful records.

B) Posting quality banners or company flags where they are visible to all.

C) Castigating the lazy employees for their shoddy workmanship.

- D) Sending employees to Motivation Camp taught by expensive consultants.
- 9 Process control charts were an innovation attributed to
- A) Deming in the 1950's.
- B) Shewhart in the 1920's.**
- C) Westinghouse in the 1960's.
- D) Pacioli in the 1490's.
- 10 Likely reasons for inaccurate control limits would include which of the following?
- A) The engineering parameter for variance is unknown.
- B) The engineers were underpaid for their work.
- C) There was insufficient preliminary sampling.**
- D) Process variation was not zero, as expected.
- 11 Which is not a characteristic of a p-chart?
- A) It shows the number of defects per item being inspected.**
- B) It measures the fraction of non-conforming items in a sample.
- C) It is based on the binomial distribution (or its normal approximation).
- D) It will have varying control limits if the sample size is changing.
- 12 Which is not a tool of statistical quality control?
- A) Fishbone diagram.
- B) Pareto chart.
- C) Attribute control chart.
- D) Deming chart.**
- 13 If the subgroup size is $n = 4$ and the process parameters are $\mu = 2.75$ and $\sigma = .044$, the control limits for the chart will be:
- A) LCL = 2.684, UCL = 2.816**
- B) LCL = 2.728, UCL = 2.772
- C) LCL = 2.618, UCL = 2.882
- 14 Find the Cpk index for a process with USL = 550, LSL = 540, $\mu = 543$, and $\sigma = 0.75$.
- A) 1.33**
- B) 2.22
- C) 1.25
- D) 1.75
-

Multiple Choice Quiz

- 1 Nonparametric tests generally are preferred over parametric tests when normality cannot be assumed.
- A) True**
- B) False

2 Rejection of a hypothesis using a nonparametric test is more convincing than using an equivalent parametric test when the data are skewed.

A) **True**

B) False

3 Most nonparametric tests assume ordinal data.

A) **True**

B) False

4 The one-sample runs test compares medians of two or more groups.

A) True

B) **False**

5 The Mann-Whitney test can be used as a test for equality of two population medians.

A) **True**

B) False

6 The Kruskal-Wallis test is a test for randomness in sequential data.

A) True

B) **False**

7 Which nonparametric test is analogous to a parametric t-test for independent sample means?

A) Wald-Wolfowitz test.

B) Wilcoxon signed rank test.

C) **Mann-Whitney test.**

D) Kruskal-Wallis test.

8 Which nonparametric test is analogous to a one-factor ANOVA?

A) **Kruskal-Wallis test.**

B) Friedman test.

C) Mann-Whitney test.

D) Wilcoxon signed rank test..

9 Which nonparametric test is analogous to a parametric one-sample t-test for differences in paired data?

A) Wald-Wolfowitz test.

B) **Wilcoxon signed rank test.**

C) Mann-Whitney test.

D) Kruskal-Wallis test.

10 Which parametric test resembles the nonparametric Spearman's rank test?

A) **The t-test of a correlation coefficient.**

B) The t-test of two sample means.

C) The t-test of one sample mean.

D) The one factor ANOVA.

11 Which is not true of the one-sample runs test?

A) It is also called the Wald-Wolfowitz test after its inventors.

B) Its purpose is to detect non-randomness.

C) **It cannot be applied to sequential binary data.**

D) It is similar to test for autocorrelation.

12 Which nonparametric test is used to compare one sample median with a benchmark?

A) Wald-Wolfowitz test.

B) **Wilcoxon signed rank test.**

- C) Mann-Whitney test.
 - D) Kruskal-Wallis test.
-

Chapter No 15

Multiple Choice Quiz

- 1 The chi-square test is based on frequencies rather than on individual data values.
A) True
B) False
- 2 The chi-square test for independence is a non-parametric test.
A) True
B) False
- 3 In a chi-square goodness of fit test, a small p-value would indicate a good fit to the hypothesized distribution.
A) True
B) False
- 4 Observed frequencies in a chi-square goodness-of-fit test may be less than 5 or even 0 as long as the expected frequencies are at least 5.
A) True
B) False
- 5 If two variables are independent, we would anticipate a chi-square test statistic close to zero.
A) True
B) False
- 6 The null hypothesis for a chi-square test on a contingency table is that the variables are dependent on one another.
A) True
B) False
- 7 Employees of OxCo Mfg. were surveyed to evaluate the company's pension plan. The table below displays some of the results of the survey. The expected frequency for the shaded cell in the table would be:
A) 163
B) 158
C) 165
D) 160
- 8 Employees of OxCo Mfg. were surveyed to evaluate the company's pension plan. The table below displays some of the results of the survey.

Degrees of freedom for this test (shaded cell below the table) would be

- A) 7
- B) BC. 799
- C) CA. 6**
- D) D. 12

9 Employees of OxCo Mfg. were surveyed to evaluate the company's pension plan. The table below displays some of the results of the survey.

From the given data, the best conclusion would be

A) **not to reject H_0 at any common α .**

B) to reject H_0 at $\alpha = .10$.

C) to reject H_0 at $\alpha = .05$.

D) to reject H_0 at $\alpha = .01$.

10 The critical value in a chi-square goodness-of-fit test depends on

A) **the number of categories.**

B) the normality of the population.

C) the value of the test statistic.

D) All of the above.

11 For a chi-square test, a 4×5 contingency table will have how many degrees of freedom?

A) **12**

B) 8

C) 9

D) 6

12 We sometimes combine two categories in a chi-square test if

A) the sample size is less than 30.

B) their observed frequencies are below 5.

C) **their expected frequencies are below 5.**

D) the p-value is less than α .

13 The number of cars waiting at a certain residential neighborhood stop light is observed at 6:00 AM on 160 different days. The observed sample frequencies are:

Number of Cars Waiting	0	1	2	3
Observed Frequency	10	65	71	14

Under the null hypothesis of a uniform distribution, the expected number of days we would see 0 cars is

A) 10

B) 20

C) 30

D) **40**

14 A chi-square goodness of fit test for a normal distribution used 40 observations, with the mean and standard deviation were estimated from the sample. The test used six categories, all with expected frequencies greater than 5. We would use how many degrees of freedom in looking up the critical value for the test?

A) 39

B) 37

C) 5

D) **3**

Chapter No 14

Multiple Choice Quiz

- 1 The principle of Occam's Razor says we must choose the simplest forecasting trend model.
A) True
B) False
- 2 An attraction of MAPE as a measure of fit is its simple interpretation.
A) True
B) False
- 3 Over long periods of times multiplicative time series models may to be favored over additive time series models because the data magnitude changes.
A) True
B) False
- 4 In exponential smoothing, the model becomes less responsive to recent data as the smoothing constant α increases.
A) True
B) False
- 5 Regression analysis can be used for forecasting a monthly time series data using a trend variable and 12 binary predictors for the months.
A) True
B) False
- 6 A computer analysis reveals that the best-fitting trend model is $Y_t = 4.12 e^{0.987 t}$. The trend was fitted using year-end common stock prices for Melodic Kortholt Outlet for the last six years. The R^2 is 0.8571. Which conclusion is not correct?
A) The absolute annual growth (in dollars per share) is increasing.
B) Few investments could match the astounding growth rate.
C) At the end of year 3 the stock price would be nearly \$80.
D) The exponential model is inappropriate for financial data.
- 7 If we fit a linear trend to 10 observations on time series data that are growing exponentially, then it is most likely that
A) the fitted trend will be too high at $t = 1$ and $t = 10$.
B) the fitted trend will be too low in the middle.
C) the forecasts (if extrapolated) will be too low.
- 8 Suppose the estimated quadratic model $Y_t = 500 + 20 t - t^2$ is the best-fitting trend of sales of XYZ Inc. using data for the past twenty years ($t = 1, 2, \dots, 20$). Which statement is incorrect?
A) Sales are increasing by about 20 units per year.
B) The turning point would be in period 10.
C) Latest year sales are no better than in year zero.
D) The trend was higher in year 10 than in year 20.
- 9 Which is a time series?
A) The M1 component of the U.S. money supply (n = 20 quarters).
B) The unemployment rates for the u.s. states (n = 50 states).
C) The Gross Domestic Product for the E.U. members (n = 15 nations).
D) The inflation rate for housing in u.s. metropolitan areas (n = 46 cities).
- 10 Which is not an additive component of a time series?
A) Trend.
B) Seasonal.

- C) Irregular.
D) Periodicity.
- 11 The fitted annual sales trend is $Y_t = 187.3 e^{.047 t}$. On average, sales are
A) rising by an increasing absolute amount each year.
B) rising by a declining absolute amount each year.
C) falling by a declining absolute amount each year.
D) falling by an increasing absolute amount each year
- 12 The fitted annual sales trend is $Y_t = 187.3 e^{.047 t}$. The sales forecast for year 5 would be
A) 236.9
B) 178.7
C) 168.2
D) 148.1
- 13 Concerning a multiplicative seasonal index for monthly data, which statement is incorrect?
A) An index value of 1.000 indicates no seasonal deviation from trend.
B) The estimated indexes are adjusted so they always sum to 12.
C) To make forecasts, we divide the projected trend by each month's index.
D) They are obtained by the process called decomposition of a time series.
- 14 Which statement is correct for a simple index?
A) For the base year, the index is set to 0.000.
B) We cannot use index numbers to compare two time series measured in different units.
C) The simple relative index for period $t = 5$ is calculated as Y_5/Y_1 .
D) Weighted index numbers have few practical applications due to their complexity.
-

Chapter No 13

Multiple Choice Quiz

- 1 A linear regression with 3 predictors and 33 observations violates Evan's Rule.
A) True
B) False
- 2 If a regression model's F test statistic is $F_{calc} = 43.82$, we could say that the explained variance is approximately 44%.
A) True
B) False
- 3 The objective of a multiple regression is to explain variation in a response variable Y using several independent X variables, often called predictors.
A) True
B) False
- 4 Negative estimated coefficients in a regression usually indicate weak predictors.
A) True
B) False
- 5 Non-normality of the residuals from a regression can best be detected by looking at the residual plots for against the fitted Y values.
A) True
B) False
- 6 The effect of a binary predictor X is to shift the regression intercept.
A) True

- B) False
- 7 The random error term in a regression model reflects all factors omitted from the model.
A) True
- B) False
- 8 Which of the following is not a characteristic of the F distribution?
A) It is a continuous distribution.
B) The test statistic F_{calc} can never be negative.
C) Its degrees of freedom vary, depending on α .
D) It is used to test for overall significance in a regression.
- 9 The unexplained sum of squares measures variation in the dependent variable about
A) the mean of the Y values.
B) the estimated Y values.
C) the mean of the X values.
D) the Y-intercept.
- 10 Which of the following is most useful in checking the normality assumption of the errors in a regression model?
A) The t statistic for each coefficient.
B) The leverage statistic for each residual.
C) The histogram of all the residuals.
D) The VIF statistic for each predictor.
- 11 A multiple regression analysis with two independent variables yielded the following results: $SS(\text{Total}) = 798$, $SS(\text{Regression}) = 738$, $SS(\text{Error}) = 60$. The multiple correlation coefficient is
A) 0.2742
B) 0.0752
C) 0.9248
D) 0.9617
- 12 In a least squares multiple regression all of the following are true regarding residuals except
A) they may be used to test for multicollinearity.
B) they are differences between observed and estimated values of Y.
C) their sum will always equal zero even if there are outliers.
D) they may be used to detect heteroscedasticity.
- 13 Heteroscedasticity means that we have
A) multicollinearity among the predictors.
B) nonconstant variation in the residuals.
C) lack of independence in successive residuals.
D) more than one of the above.
- 14 If you re-run a regression, omitting a predictor X5, which would be unlikely?
A) The new R^2 will decline if X5 was a relevant predictor.
B) The new standard error will increase if X5 was a relevant predictor.
C) The remaining estimated β 's will change if X5 was collinear with other predictors.
D) The numerator degrees of freedom for the F test will increase.
- 15 A fitted multiple regression equation is $Y = 12 + 3X_1 - 5X_2 + 7X_3 + 2X_4$. When X_1 increases 2 units and X_2 increases 2 units as well, while X_3 and X_4 remain unchanged, what change would you expect in your estimate of Y?

- A) Decrease by 2.
- B) Decrease by 4.**
- C) Increase by 4.

16 A test is conducted in 22 cities to see if giving away free transit system maps will increase the number of bus riders. In a regression analysis, the dependent variable Y is the increase in bus riders (in thousands of persons) from the start of the test until its conclusion. The independent variables are X_1 = the number (in thousands) of free maps distributed, and a binary variable $X_2 = 1$ if city has free downtown parking, 0 otherwise. The estimated regression equation is $\hat{Y} = 0.005X_1 + 0.002X_2 + 3.5$. In city 3, the observed Y value is 7.3 with $X_1 = 140$ and $X_2 = 0$. The residual for city 3 (in thousands) is:

- A) 6.15
- B) 1.15**
- C) 4.83
- D) 1.57185

Chapter No 12

Multiple Choice Quiz

1 The approximate rule for a two-tailed correlation test at $\alpha = .05$ would say that a sample correlation of $r = 0.42$ with $n = 25$ is significantly different than zero (but just barely).

- A) True**
- B) False

2 The bivariate correlation coefficient r always has the same sign as b_1 in $Y = b_0 + b_1X$.

- A) True**
- B) False

3 The least squares regression line is obtained when the slope and intercept are minimized.

- A) True
- B) False**

4 When using the least squares method, the column of residuals must always sum to zero.

- A) True**
- B) False

5 A confidence interval for predicted Y is widest when $X =$.

- A) True
- B) False**

6 The sample coefficient of correlation does not have which property?

- A) It can range from -1.00 up to +1.00.
- B) It is also sometimes called Pearson's r .
- C) It assumes that Y is the dependent variable.**
- D) It is tested for significance using a t-test.

7 Which is not true of the coefficient of determination?

- A) It is the square of the coefficient of correlation.
- B) It is negative when there is an inverse relationship between X and Y.**
- C) It reports the percent of the variation in Y explained by X.
- D) It is calculated using sums of squares (SSR, SSE, SST).

8 If the fitted regression is $Y = 3.5 + 2.1X$ ($R^2 = .25$, $n = 25$) it is incorrect to conclude that

- A) Y increases 2.1 percent for a 1 percent increase in X.**
- B) the estimated regression line crosses the Y axis at 3.5.
- C) the correlation coefficient must be positive.

- D) the value of the correlation coefficient must be 0.25.
- 9 In a bivariate regression with 25 observations, which statement is most nearly correct?
- A) A residual whose value is $e_i = 4,227$ would be considered an outlier.
- B) Any leverage statistic of 0.16 or more would indicate high leverage.**
- C) Standardizing the residuals will eliminate heteroscedasticity.
- D) Non-normal residuals imply biased coefficient estimates, a major problem.
- 10 William used a sample of 68 U.S. cities to estimate the relationship between Crime (annual property crimes per 100,000 persons) and Income (median income per capita). His estimated regression equation was $\text{Crime} = 428 + 0.050 \text{ Income}$. From this information, we can conclude that
- A) the slope does not differ significantly from zero at $\alpha = .05$.
- B) crime tends to create additional income in a city.
- C) wealthy individuals tend to commit more crimes, on average.
- D) the intercept is irrelevant since zero median income is unobservable.**
- 11 William used a sample of 68 U.S. cities to estimate the relationship between Crime (annual property crimes per 100,000 persons) and Income (median income per capita, in dollars). Her estimated regression equation was $\text{Crime} = 428 + 0.050 \text{ Income}$. If Income decreases by 1000 we would expect that Crime will
- A) increase by 428.
- B) increase by 50.**
- C) increase by 500.
- D) remain unchanged.
- 12 In a bivariate regression $Y = b_0 + b_1X$ where Y = number of robberies in city (thousands of robberies), X = size of police force in city (thousands of police), and $n = 45$ randomly chosen U.S. cities in 2007, we would be least likely to see which violation?
- A) Autocorrelated residuals (because this is time series data).**
- B) Heteroscedastic residuals (because we are using totals uncorrected for city size).
- C) Non-normal residuals (because a few larger cities may skew the residuals).
- 13 Which statement is not correct?
- A) Spurious correlation can often be reduced by expressing X and Y in per capita terms.
- B) Autocorrelation is mainly a concern if we are using time-series data.
- C) Heteroscedastic residuals have the same variance for any value of X .**
- D) Standardized residuals make it easier to identify outliers.
- 14 In a simple (bivariate) regression with $n = 25$, the critical value for a two-tailed test for zero slope using $\alpha = .05$ is:
- A) 1.714
- B) 2.069**
- C) 1.960
- D) 2.064
- ter than .10
-

Chapter No 10

Multiple Choice Quiz

- 1 In comparing the means of two independent samples, if the test statistic indicates a significant difference at $\alpha = .05$, it will also be significant at $\alpha = .10$.
- A) True**
- B) False

2 For two independent samples, the comparison of means generally utilizes the Student's t distribution because the population variances usually are unknown

A) **True**

B) False

3 The F test is used to compare the variances of two samples.

A) **True**

B) False

4 In a paired t-test, the two samples may be of unequal size.

A) True

B) **False**

5 Performing a t-test for two paired samples is essentially a one sample t-test.

A) **True**

B) False

6 Weekly sales of diet coke at each of twelve Target stores are recorded before and after installing a new eye-catching display. To determine if the display is effective in increasing sales, what type of statistical test would you expect to perform?

A) Comparison of means using an independent sample t-test.

B) **Comparison of means using a paired t-test.**

C) Comparison of means using a z-test.

7 Carver Memorial Hospital's surgeons have a new procedure that they think will decrease the time to perform an appendectomy. A sample of 8 appendectomies using the old method had a mean of 38 minutes with a variance of 36 minutes, while a sample of 10 appendectomies using the experimental method had a mean of 29 minutes with a variance of 16 minutes. For a right-tail test of means (assume equal variances) the critical value for $\alpha = .10$ is

A) 1.746

B) **1.337**

C) 2.120

D) 2.754

8 Carver Memorial Hospital's surgeons have a new procedure that they think will decrease the time to perform an appendectomy. A sample of 8 appendectomies using the old method had a mean of 38 minutes with a variance of 36 minutes, while a sample of 10 appendectomies using the experimental method had a mean of 29 minutes with a variance of 16 minutes. For a right-tail test of means (assume equal variances) the test statistic is

A) 2.365

B) **3.814**

C) 3.000

D) 1.895

9 Carver Memorial Hospital's surgeons have a new procedure that they think will decrease the time to perform an appendectomy. A sample of 8 appendectomies using the old method had a variance of 36 minutes, while a sample of 10 appendectomies using the experimental method had a variance of 16 minutes. In a two-tailed test for equal variances, the critical values at $\alpha = .10$ are

A) 3.73 and 0.228

B) 2.51 and 3.67

C) 3.07 and 0.398

D) **3.29 and 0.272**

10 In a test of a new surgical procedure, the five most respected surgeons in FlatBroke Township were invited to Carver Hospital. Each surgeon was assigned two patients of the same age, gender, and overall health. One patient was operated upon in the old way, and the other in the new way. Both procedures are considered equally safe. The time (in minutes) to complete each procedure is shown:

	Surgeon				
	Allen	Bob	Chloe	Daphne	Edgar
Old Way	36	55	28	40	62
New Way	31	45	28	35	57

In a right-tail test for a difference of means at $\alpha = .05$, the critical value is

- A) 3.162, paired t-test
- B) 2.132, paired t-test**
- C) 1.645, independent samples t-test
- D) 2.776, independent samples t-test

11 In a test of a new surgical procedure, the five most respected surgeons in FlatBroke Township were invited to Carver Hospital. Each surgeon was assigned two patients of the same age, gender, and overall health. One patient was operated upon in the old way, and the other in the new way. Both procedures are considered equally safe. The time (in minutes) to complete each procedure is shown.

	Surgeon				
	Allen	Bob	Chloe	Daphne	Edgar
Old Way	36	55	28	40	62
New Way	31	45	28	35	57

In a right-tailed test for a difference of means, the test statistic is

- A) 3.162**
- B) 1.645
- C) 1.860
- D) 2.132

12 The Board of Surgeons recommends a postoperative examination six months after a prostatectomy. In a sample from the records of Cutter Memorial Hospital, follow-up exams were given in 90 out of 200 cases. In a sample of records from Paymor Hospital, follow-up exams were given in 110 out of 200 cases. In comparing the two proportions, normality may be assumed because

- A) the populations may be assumed normal.
- B) the populations may be assumed large.
- C) the samples may be assumed random.
- D) $n\pi \geq 10$ and $n(1 - \pi) \geq 10$ for each sample.**

13 The Board of Surgeons recommends a postoperative examination six months after a prostatectomy. In a sample from the records of Cutter Memorial Hospital, follow-up exams were given in 90 out of 200 cases. In a sample of records from Paymor Hospital, follow-up exams were given in 110 out of 200 cases. In a left-tailed test for equality of proportions, the test statistic is

- A) -1.96
- B) -2.58
- C) -2.00**
- D) -3.47

14 The Board of Surgeons recommends a postoperative examination six months after a prostatectomy. In a sample from the records of Cutter Memorial Hospital, follow-up exams were given

in 90 out of 200 cases. In a sample of records from Paymor Hospital, follow-up exams were given in 110 out of 200 cases. In a left-tailed test for equality of proportions the p-value is

- A) .9772
- B) .4772
- C) .0228**
- D) .0014

Chapter No 9

Multiple Choice Quiz

1 If a judge acquits every defendant, the judge will never commit a Type I error.

- A) True**
- B) False

2 In hypothesis testing we cannot prove a null hypothesis is true.

- A) True**
- B) False

3 For a sample of 9 items, the critical value for a left-tailed test of a mean at $\alpha = .05$ is -1.860.

- A) True**
- B) False

4 In a two-tailed hypothesis test for a mean with $\alpha = .05$, a test statistic of $t = 1.813$ with $n = 16$ leads to rejection of the null hypothesis.

- A) True
- B) False**

5 The power of a test is the probability that the test will reject a false null hypothesis.

- A) True**
- B) False

6 Type II error is the probability of rejecting a true null hypothesis

- A) True
- B) False**

7 Given $H_0: \mu \geq 18$ and $H_1: \mu < 18$, we would commit Type I error if we

- A) conclude that $\mu \geq 18$ when the truth is that $\mu < 18$.
- B) conclude that $\mu < 18$ when the truth is that $\mu \geq 18$.**

C) fail to reject $\mu \geq 18$ when the truth is that $\mu < 18$.

8 Which is not true of p-values?

- A) When they are small, we want to reject H_0 .
- B) They must be specified before the sample is taken.**
- C) They show the chance of Type I error if we reject H_0 .

9 Dullco Manufacturing claims that its alkaline batteries last at least forty hours on average in a certain type of portable CD player. But tests on a random sample of 18 batteries from a day's large production run showed a mean battery life of only 37.8 hours with a standard deviation of 5.4 hours. To test Dullco's hypothesis, the test statistic is

- A) -1.980
- B) -1.728**
- C) -2.101
- D) -1.960

10 Last year, 10 percent of all teenagers owned an iPhone. This year, a sample of 260 randomly chosen teenagers showed that 39 owned an iPhone. The test statistic to find out whether the percent has risen is

- A) 2.687**
- B) 2.758
- C) .0256
- D) 2.258

11 Last year, 10 percent of all teenagers purchased a new iPhone. This year, a sample of 260 randomly chosen teenagers showed that 39 had purchased a new iPhone. To test whether the percent has risen, the critical value at $\alpha = .05$ is

- A) 1.686

- B) 1.655
C) 1.645
D) 1.960
- 12 Last year, 10 percent of all teenagers purchased a new iPhone. This year, a sample of 260 randomly chosen teenagers showed that 39 had purchased a new iPhone. To test whether the percent has risen, the p-value is
A) .0501
B) .0314
C) .0492
D) .0036
- 13 Assuming that other factors remain the same, which of the following statements is most nearly correct for a t-test of a mean?
A) For a given α , the critical value of Student's t is smaller if n is smaller.
B) If $t_{calc} = 1.482$ with $n = 22$, we get a clear-cut rejection in a right-tailed test at $\alpha = .05$.
C) Rejecting $H_0: \mu = 75$ in a two-tailed test implies rejection in a one-tailed test at the same α .
D) A calculated p-value of 0.13 would lead us to reject the null hypothesis at $\alpha = 0.10$.
- 14 John rejected a null hypothesis in a right-tailed test for a mean at $\alpha = .025$ because his critical t value was 2.000 and his calculated t value was 2.345. We can be sure that
A) John did not commit Type I error.
B) John did not commit Type II error.
C) John committed neither Type I nor Type II error.
D) None of the above can definitely be concluded.
- 15 In a right-tail test, a statistician came up with a z test statistic of 1.470. What is the p-value?
A) .4292
B) .0708
C) .0874
D) .0301
- 16 In a right-tailed test of hypothesis for a population mean with 13 degrees of freedom, the value of the test statistic was 1.863. The p-value is
A) less than .025.
B) between .025 and .05.
C) between .05 and .10
D) greater than .10
-

[Chapter No 8](#)
[Multiple Choice Quiz](#)

- 1 The expected value of an unbiased estimator is equal to the parameter whose value is being estimated.
A) True
B) False
- 2 The mean is a biased estimator since sampling errors always exist to some extent.
A) True
B) False
- 3 The Central Limit Theorem says that a histogram of the sample data will resemble a bell-shape, even if the population isn't normal.
A) True
B) False

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4 The distribution of the sample proportion $p=x/n$ can be assumed to be normal if $np \geq 10$.

A) True

B) False

5 In a sample size calculation for a mean, if the confidence level decreases, the required sample size will increase.

A) True

B) False

6 Concerning confidence intervals, which statement is most nearly correct?

A) We should use z instead of t when n is large.

B) We use the t distribution when σ is unknown.

C) Using the t distribution instead of z narrows the confidence interval.

7 The standard error of the mean decreases if

A) the sample size decreases.

B) the standard deviation increases, provided that n is constant.

C) the standard deviation decreases or if n increases.

D) the population size decreases.

8 Which statement is incorrect? Explain.

A) If $p = .50$ and $n = 64$ the estimated standard error of the sample proportion is $.025$.

B) In a sample size calculation for estimating π it is conservative to assume $\pi = .50$.

C) If $n = 250$ and $p = .07$ it is safe to assume normality in a confidence interval for π .

9 The owner of Limp Pines Resort wanted to know the average age of its clients. A random sample of 25 tourists is taken. It shows a mean age of 46 years with a standard deviation of 5 years. The width of a 98 percent CI for the true mean client age is approximately

A) ± 2.06 years.

B) ± 2.33 years.

C) ± 2.49 years.

D) ± 2.79 years.

10 A random sample of 16 ATM transactions at the Last National Bank of Flatrock revealed a mean transaction time of 2.8 minutes with a standard deviation of 1.2 minutes. The width (in minutes) of the 95% confidence interval for the true mean transaction time is

A) ± 0.639

B) ± 0.588

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C) ± 0.300

D) ± 2.131

11 To estimate the average annual expenses of students on books and class materials a sample of size 36 is taken. The mean is \$850 and the standard deviation is \$54. A 99% confidence interval for the population mean is

A) \$823.72 to \$876.28

B) \$826.82 to \$873.18

C) \$831.73 to \$868.27

D) \$825.48 to \$874.52

12 A poll showed that 48 out of 120 randomly chosen graduates of California medical schools last year intended to specialize in family practice. What is the width of a 90% confidence interval for the proportion that plan to specialize in family practice?

A) $\pm .04472$

B) $\pm .07357$

C) $\pm .08765$

D) $\pm .00329$

13 In a random sample of 810 women employees, it is found that 81 would prefer working for a female boss. The width of the 95% confidence interval for the proportion of women who prefer a female boss is

A) $\pm .0288$

B) $\pm .0105$

C) $\pm .0196$

D) $\pm .0207$

14 Jolly Blue Giant Health Insurance (JBGHI) is concerned about rising lab test costs and would like to know what proportion of the positive lab tests for prostate cancer are actually proven correct through subsequent biopsy. JBGHI demands a sample large enough to ensure an error of $\pm 2\%$ with 90% confidence. What is the necessary sample size?

A) 2,401

B) 1,692

C) 1,604

D) 609

15 A financial institution wishes to estimate the mean balances owed by its credit card customers. The population standard deviation is estimated to be \$300. If a 98 percent confidence interval is used and an interval of $\pm \$75$ is desired, how many cardholders should be sampled?

A) 3382

B) 62

C) 629

D) 87

Chapter No 7

Multiple Choice Quiz

1 For a continuous random variable, the total area beneath the probability distribution curve will be greater than 0 but less than 1.

A) True

B) False

2 In a continuous distribution the probability at a given point is zero.

A) True

B) False

3 The standardized normal distribution always has a mean of 0 and a standard deviation of 1.

A) True

B) False

4 The normal approximation is a good approximation to the binomial when n is greater than or equal to 10.

A) True

B) False

5 A binomial distribution can be symmetrical or skewed either left or right.

A) True

B) False

6 Excel's =RAND() function produces random numbers that are uniformly distributed between 0 and 1. The standard deviation of this distribution is approximately

A) .5000

B) .2500

C) .3333

D) .2887

7 The variable Z has a standard normal distribution. The probability $P(1.25 \leq Z \leq 2.17)$ is

A) 0.0906

B) 0.9200

C) 0.4700

D) 0.4850

8 The variable Z has a standard normal distribution. The probability $P(Z \leq -1.37)$ is equal to

A) 0.5853

B) 0.9147

C) 0.4147

D) 0.0853

9 Assume that X is normally distributed with a mean $\mu = \$64$. Given that $P(X \geq \$75) = 0.2981$, we can calculate that the standard deviation of X is approximately

A) \$20.75

B) \$13.17

C) \$5.83

D) \$7.05

10 The length of brook trout caught in a certain Colorado stream has a mean of 14 inches and a standard deviation of 3 inches. What proportion of these trout will be between 12 and 18 inches?

A) .6568

B) .6826

C) .2486

D) .4082

11 The length of brook trout caught in a certain Colorado stream has a mean of 14 inches and a standard deviation of 3 inches. The first quartile for the lengths of brook trout would be

A) 16.01 inches.

B) 11.00 inches.

C) 11.98 inches.

D) 8.16 inches.

12 The length of brook trout caught in a certain Colorado stream has a mean of 14 inches and a standard deviation of 3 inches. What lower limit should the State Game Commission set on length, if it is desired that 80 per cent of the catch may be kept by fisherpersons?

A) 12.80 inches

B) 11.48 inches

C) 12.41 inches

D) 12.00 inches

13 If freeway speeds are normally distributed with a mean of $\mu = 70$ mph and $\sigma = 7$ mph, about what percent of cars will exceed 78 mph?

A) 34.1%

B) 12.7%

C) 15.8%

D) 87.3%

14 A software developer makes 200 phone calls to its current customers. There is an 8 percent chance of reaching a given customer (instead of a busy signal, no answer, or answering machine). The approximate normal probability of reaching at least 15 customers is

A) .4492

B) .5000

C) .6517

D) .4981

15 Which statement is incorrect?

A) The triangular distribution always has a single mode.

B) The mean of the triangular distribution is $(a + b + c)/3$.

C) The triangular distribution is always symmetric.

16 If arrivals follow a Poisson distribution with mean 1.2 arrivals per minute, find the 75th percentile of waiting times (i.e., 75 percent below).

A) 1.155 minutes (69.3 seconds)

B) 0.240 minutes (14.4 seconds)

C) 1.919 minutes (115.1 seconds)

Chapter No 5

Multiple Choice Quiz

1

If $P(A) = .20$ then the odds against event A's occurrence are 4 to 1.

A) True

B) False

2

If events A and B are independent, then $P(A \cap B) = 0$.

A) True

B) False

3

Two events A and B are independent if $P(A | B)$ is the same as $P(A)$.

A) True

B) False

4

The empirical view of probability is based on observed relative frequencies.

A) True

B) False

5

A cross-tabulation of frequencies for two variables with categorical outcomes is called a contingency table.

A) True

B) False

6

Independent events A and B would be consistent with which of the following statements:

A) $P(A) = .5, P(B) = .4, P(A \cap B) = .3$

B) $P(A) = .4, P(B) = .3, P(A \cap B) = .5$

C) $P(A) = .3, P(B) = .5, P(A \cap B) = .4$

D) $P(A) = .4, P(B) = .5, P(A \cap B) = .2$

7

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If $P(A|B) = 0.40$ and $P(B) = 0.30$, find $P(A \cap B)$.

- A) .171
- B) .525
- C) .571
- D) .120**

8

Two events are complementary (i.e., they are complements) if

- A) the sum of their probabilities equals one.
- B) they are disjoint and their probabilities sum to one.**
- C) the joint probability of the two events equals one.
- D) they are independent events with equal probabilities.

9

If each of two independent file servers has a reliability of 93% and either alone can run the web site, then the overall web site availability is

- A) 0.8649
- B) 0.9300
- C) 0.9522
- D) 0.9951**

10

The manager of PayALot Drug Store knows that 30% of the customers entering the store buy prescription drugs, 60% buy over-the-counter drugs, and 18% buy both types of drugs. What is the probability that a randomly selected customer will buy either one or the other of these two types of drugs?

- A) .50
- B) .90
- C) .72**
- D) .30

11

Given the information below, find $P(V)$.

Cell Phone Service Provider

County	Cell Phone Service Provider			Row Total
	<i>Sprint (S)</i>	<i>AT&T (A)</i>	<i>Verizon(V)</i>	
<i>Macomb (M)</i>	17	25	8	50
<i>Oakland (O)</i>	19	38	13	70
<i>Wayne (W)</i>	24	37	19	80
Col Total	60	100	40	200

A) .20

B) .40

C) .50

D) .80

12

Given the information below , find $P(V | W)$.

County	Cell Phone Service Provider			Row Total
	<i>Sprint (S)</i>	<i>AT&T (A)</i>	<i>Verizon(V)</i>	
<i>Macomb (M)</i>	17	25	8	50
<i>Oakland (O)</i>	19	38	13	70
<i>Wayne (W)</i>	24	37	19	80
Col Total	60	100	40	200

A) .2000

B) .2375

C) .0950

D) .4000

13

Given the information below , find $P(S \cap W)$.

County	Cell Phone Service Provider			Row Total
	<i>Sprint (S)</i>	<i>AT&T (A)</i>	<i>Verizon(V)</i>	
<i>Macomb (M)</i>	17	25	8	50
<i>Oakland (O)</i>	19	38	13	70
<i>Wayne (W)</i>	24	37	19	80
Col Total	60	100	40	200

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A) .12

B) .30

C) .40

D) .58

14

A) .25

B) .50

C) .625

D) .125



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[MTH302 online Quiz 6 \(23 to 45\)](#)



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Written by PrInc3sSs

Chapter No 6 Multiple Choice Quiz

1 A random variable is a function or rule that assigns a numerical value to each outcome in the sample space of a stochastic experiment.

A) True

B) False

2) The birth weight of a newborn baby is an example of a discrete random variable.

A) True

B) False

3 To describe the possible outcomes and their probabilities when you roll one fair die, we would use a discrete binomial distribution.

A) True

B) False

4 For the Poisson distribution to apply, the events must occur randomly and independently over a continuum of time or space.

A) True

B) False

5 When $\pi = 0.70$ the binomial distribution is positively skewed.

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- A) True
B) False

6 A discrete probability distribution

- A) assigns a probability to each value of the random variable.
B) can assume any value between -1 and +1.
C) is appropriate when the probability of success is an integer.

7 Which statement is incorrect?

- A) The Poisson distribution is always skewed right.
B) The binomial distribution may be skewed left or right.
C) The uniform distribution is never skewed.
D) The Bernoulli distribution has two equally likely outcomes.

8 Historically, 2% of the stray dogs in the city of Southfield are unlicensed. On a randomly-chosen day, the Southfield city animal control officer picks up 7 stray dogs. What is the probability that at least one will be unlicensed?

- A) .8681
B) .1319
C) .3670
D) .1240

9 In a randomly-chosen week, which probability model would you use to describe the number of accidents at the intersection of two streets?

- A) Uniform.
B) Binomial.
C) Poisson.
D) Geometric.

10 Which probability model would you use to describe the number of damaged printers in a random sample of 12 printers taken from a shipment of 70 printers that contains 6 damaged printers?

- A) Poisson.
B) Hypergeometric.
C) Binomial.
D) Geometric.

11 Consider the following probability distribution of the random variable X:

X	P (X)
100	.10
150	.20
200	.30
250	.30
300	.10
	1.00

The expected value of X is:

- A) 175
B) 150
C) 200
D) 205

12A carnival has a game of chance: a fair coin is tossed. If it lands heads you win \$1.00 and if it lands tails you lose \$0.50. How much should a ticket to play this game cost if the carnival wants to break even?

- A) **\$.25**
- B) \$.50
- C) \$.75
- D) \$1.00

13A random variable X is distributed binomially with $n = 8$ and $\pi = 0.70$. The standard deviation of the variable X is approximately

- A) 0.458
- B) 2.828
- C) 1.680
- D) **1.296**

14In Quebec, 90 percent of the population subscribes to the Roman Catholic religion. In a random sample of 8 Quebecois find the probability that the sample contains at least five Roman Catholics.

- A) .0050
- B) .0331
- C) **.9950**
- D) .9619

15On average, a major earthquake (Richter scale 6.0 or above) occurs 3 times a decade in a certain California county. Find the probability that at least one major earthquake will occur within the next decade.

- A) .9810
- B) .0498
- C) .1994
- D) **.9502**

16If the probability of success is .25, what is the probability of obtaining the first success within the first 3 trials?

- A) .4218
- B) **.5781**
- C) .1406

Chapter No 4

Multiple Choice Quiz

1

A distribution that has a great many values clustered to the left and then tails off to the right is said to be negatively skewed.

- A) True
- B) **False**

2

When applying the Empirical Rule to a distribution of grades, if a student scored one standard deviation below the mean she would be at the 25th percentile point of the distribution.

- A) True
- B) **False**

3

Chebyshev's theorem says that at least 95% of the data will lie within 2 standard deviations of the mean for any data set.

A) True

B) False

4

The Empirical Rule is based on the assumption of a normal distribution.

A) True

B) False

5

The midrange is not greatly affected by outliers.

A) True

B) False

6

A sample consists of the following data: 7, 11, 12, 18, 20, 22, 43. Using the "three standard deviation" criterion, the last observation ($X = 43$) would be considered an outlier.

A) True

B) False

7

Which is a characteristic of the mean as a measure of central tendency?

A) Deviations around the mean may not sum to zero if there are outliers.

B) The mode is more useful than the mean when data are continuous.

C) The mean utilizes all the information in a sample.

D) The mean usually is the same as the median in business data.

8

Which statement is false? Explain.

A) If $\mu = 52$ and $\sigma = 15$, then $X = 81$ would be an outlier.

B) If the data are from a normal population, about 68% of the X values will be within $\mu \pm \sigma$.

C) If $\mu = 640$ and $\sigma = 128$ then the coefficient of variation is 20 percent.

9

Patient survival times after a certain type of surgery have a very right-skewed distribution due to a few high outliers. Consequently, which statement is most likely to be correct?

A) Median > midrange.

B) Mean < median.

C) Mean > midrange.

D) Mean > trimmed mean.

10

If $Q1 = 150$ and $Q3 = 250$, the upper fences (inner and outer) are:

A) 450 and 600

B) 350 and 450.

C) 400 and 550

D) impossible to determine without knowing n .

11

So far this year, stock A has had a mean price of \$6.58 per share with a standard deviation of \$1.88, while stock B has had a mean price of \$10.57 per share with a standard deviation of \$3.02. Which stock is more volatile?

A) Stock A

- B) Stock B
- C) They are the same.**

12

Which of the following statements is likely to describe the incomes of 50 randomly-chosen taxpayers in California?

- A) The median income would probably be near the mean.
- B) The midhinge would be a robust measure of central tendency.**
- C) The sum of squared deviations about the mean would be negative.
- D) Outliers in either tail would be equally likely.

13

Twelve randomly-chosen students were asked how many times they had missed class during a certain semester, with this result: 2, 1, 5, 1, 1, 3, 4, 3, 1, 1, 5, 18. For this sample, the geometric mean is

- A) 2.376**
- B) 2.158
- C) 1.545
- D) Impossible to calculate.

14

Twelve randomly-chosen students were asked how many times they had missed class during a certain semester, with this result: 2, 1, 5, 1, 1, 3, 4, 3, 1, 1, 5, 18. For this sample, the median is

- A) 2
- B) 3
- C) 3.5
- D) 2.5**

15

Twelve randomly-chosen students were asked how many times they had missed class during a certain semester, with this result: 2, 1, 5, 1, 1, 3, 4, 3, 1, 1, 5, 18. For this sample, which measure of central tendency is least representative of the "typical" student?

- A) Mean.
- B) Median.
- C) Mode.
- D) Midrange.**

16

Twelve randomly-chosen students were asked how many times they had missed class during a certain semester, with this result: 2, 1, 5, 1, 1, 3, 4, 3, 1, 1, 5, 18. For this sample, the standard deviation is approximately

- A) 4.75**
 - B) 4.55
 - C) 3.03
 - D) 3.75
-

Chapter NO 3

Multiple Choice Quiz

1The bar chart should be avoided if you are plotting time series data.

- A) True
- B) False**

2Pie charts are used in business or by the general media, but are not favored by statisticians.

- A) True**
- B) False

3The line chart is appropriate for attribute (qualitative) data.

- A) True
- B) False**

4Dot plots are similar to histograms except that they have many bins (classes).

- A) True**
- B) False

5Radar charts are useful because they do not distort relative data values as a bar chart might.

- A) True
- B) False**

6Which is not a criterion for judging a frequency distribution?

- A) The number of bins is approximately consistent with Sturges' Rule.
- B) The bin limits are often based on aesthetic judgment of "appropriate" classes.
- C) The lowest and highest bin limits must cover the data range exactly.**
- D) The bins are defined so there is no ambiguity about "cutpoints" between bins.

7The _____ can be used to differentiate the "significant few" causes of quality problems from the "trivial many" causes of quality problems.

- A) Histogram.
- B) Scatter plot.
- C) Pareto chart.**
- D) Dot plot.

8Histograms usually do not reveal the

- A) exact data range.**
- B) modal class(es).
- C) degree of skewness.
- D) frequencies within bins.

9Which is most nearly correct concerning pictograms?

- A) They are attractive to statisticians, but not to the general media.
- B) They are basically line graphs rather than pictures.
- C) They are attention-getting and interesting to readers.**
- D) They are included in statistical Excel add-ins (e.g., MegaStat).

10Which is not a tip for effective line charts?

- A) Line charts are better than bar charts when displaying more than one time series.
- B) Non-zero origin is sometimes acceptable to show sufficient detail.
- C) Omit data markers (e.g., squares, triangles) if the series has only a few data values.**

- D) Use light grid lines so they don't dominate the graph.
- 11 Which data would be suitable for a pie chart?
- A) Whirlpool Corporation's sales revenue for the last five years.
- B) Oxnard University student category (undergraduate, masters, doctoral).**
- C) Average SAT scores for entering freshmen at 10 major u.s. universities.
- D) Price-earnings ratios for ten common stocks.
- 12 Which is not considered a deceptive graphical technique?
- A) Nonzero origin.
- B) Elastic graph proportions.
- C) Dramatic title.
- D) Axis demarcations.**
- 13 This histogram shows Chris's golf scores in his last 77 rounds at Devil's Ridge. Which is not a correct statement?
- A) The number of bins is consistent with Sturges' Rule**
- B) The histogram has a noticeable bimodal shape.
- C) The modal class is $78 < 80$.
- D) About 19% of his scores are in the interval $74 < 76$.
- 14 Which is not characteristic of using a log scale to display time series data?
- A) A log scale helps to compare changes in two time series of dissimilar magnitude.**
- B) General business audiences find it easier to interpret a log scale.
- C) Equal distances represent equal ratios.
-



[Multiple Choice Quiz](#)
[Chapter No 1](#)

1

Predicting a presidential candidate's percent of the statewide vote from a sample of 800 voters would be an example of inferential statistics.

- A) True**
- B) False

2

The post hoc fallacy is the logical error of concluding that if B follows A, then B was caused by A.

- A) True**
- B) False

3

The 3 Ps of oral presentation are pace, planning, and prolixity.

- A) True**
- B) False

4

An example of descriptive statistics would be reporting the percent of students in your accounting class that attended the review session for the last exam.

A) True

B) False

5

Research suggests that company annual reports have an average readability index higher than the average reading level of a college graduate.

A) True

B) False

6

"Bob must be rich. He's a lawyer, and lawyers make lots of money." This statement best illustrates which fallacy?

A) Using poor survey methods.

B) Confusing significance with importance.

C) Unconscious bias.

D) Generalizing from an average to an individual.

7

Which is not an ethical obligation of a statistician? Explain.

A) To know and follow accepted procedures.

B) To ensure data integrity and accurate calculations.

C) To support client wishes in drawing conclusions from the data.

D) To acknowledge sources of financial support.

8

Which of the following is not a characteristic of a good business data analyst?

A) Technically current (e.g., software).

B) Communicates well (both written and oral).

C) Adapts answers to client desires.

D) Can deal with imperfect information.

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9

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Which of the following statements is not true?

- A) A statistic is a single measure that is calculated from a sample.
- B) Statistics is the science of collecting, organizing, analyzing, interpreting, and presenting data.
- C) For day-to-day data business analysis, most firms rely on a staff of expert statisticians.**
- D) A statistical test may be significant yet have no practical importance.

10

Which of the following is a desirable characteristic of an executive summary?

- A) It uses precise scientific terminology and statistical jargon.
- B) It is usually several pages long, so as to cover all the details.
- C) It outlines the methods and key findings so they cannot be missed.**
- D) It contains tables, charts, graphs, and sometimes a data appendix.

11

If 25% of the students in my morning statistics class watch 8 or more hours of television a week, I conclude that 25% of all students at the University watch 8 or more hours of television a week. The most important logical weakness of this conclusion would be

- A) relying on a sample instead of surveying every student.
- B) using a sample that may not be representative of all students.**
- C) failing to correct for unconscious interviewer bias.
- D) assuming cause and effect where none exists.

12

To improve your statistical report writing skills you should

- A) set aside 25% of your project time budget to write the report.
- B) outline the report format before you begin.
- C) have your report reviewed by trusted peers, and plan to revise it more than once.
- D) do all of the above.**

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Which is not a key aspect of business intelligence?

- A) Collecting and storing data in an accessible form.
- B) Accessing and analyzing data to make business decisions.

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C) Converting structured information into raw data.

D) Using data to improve processes and decisions.



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