Test 4 (Write your name scantron, 2 pts off if not)

The following data represent travel expenses claimed on 5 business trips:

$500; $700; $400; $600; $300

1. The **median** monthly expense is

a. $300 b. $400

c. $500 d. none of the above

2. The mean monthly expense is

a. $450 b. $550

c. $650 d. none of the above

3. The standard deviation of monthly expense is about

a. $33 b. $158

c. $212 d. $274

4. The standardized value for $500 is

a. 0 b. -3.1

c. 0.7 d. 1.4

|  |  |  |
| --- | --- | --- |
| t-Test: Two-Sample Assuming Unequal Variances |  |  |
|  |  |  |
|  | *Male* | *Female* |
| Mean | 60.0 | 100.0 |
| Standard Error | 6.0 | 9.0 |
| Standard Deviation | 15.0 | 25.0 |
| Observations | 100 | 100 |
| Hypothesized Mean Difference | 0 |  |
| df | 98 |  |
| t Stat | 2.44 |  |
| P(T<=t) two-tail | 0.02 |  |
| t Critical two-tail | 1.99 |  |

The Excel output in the Table above shows data on the expenditures of 100 male and 100 female customers selected at random on a given day of the week.

5. Using the data in the table above, you can conclude that

a. the null hypothesis being tested is that the mean of males = mean of females

b. the null hypothesis being tested is that males by the same or greater amount than females

c. the null hypothesis being tested is that females by the same or greater amount than males

d. none of the above

6. Using the data in the table above, you can conclude that

a. the probability that the null hypothesis is true given the sample data used is 20 percent

b. there is not a statistically significant difference between purchases of males and females

c. there is sufficient statistical evidence to reject the null hypothesis

d. none of the above

7. The observed sample mean difference between males and females is

a. 20 b. 30

c. 40 d. none of the above

8. The average difference between mean expenditure for males and the specific expenditure for them is

a. 15 b. 9

c. 40 d. 6

9. What figure in the table above is an estimate of the average sampling error for the mean of males?

a. 0.02 b. 2.44

c. 15 d. 6

10. Why is it useful to examine information like that in the table above to assess a hypothesis or proposition?

a. of the problem of mismeasurement of sample items

b. different people believe different ideas

c. of the problem of sampling error

d. the claims made by most scientists are false

11. Anytime that you see a p-value reported, you know that

a. the data has been randomly collected

b. the data must contain non-sampling error

c. a null hypothesis of some kind is being tested

d. a statistically significant difference is present

12. Suppose that the estimated proportion of voters for a presidential candidate is 45% in a random sample of 1000 voters with a standard error of the sample proportion = 2%. The 95% confidence interval for the sample proportion (the “margin of error” typically reported) would be group 2 would be about

a. 45% +- 2% b. 45% +- 3%

c. 45% +- 4% d. 45% +- 5%

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Model Summary** | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .998a | .997 | .997 | 47.600 |
| a. Predictors: (Constant), diamond size carat | | | | |

Below is SPSS regression output for a regression with Diamond Price (in $) as the dependent variable and Diamond Size (# carats) as the independent variable

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Coefficientsa** | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 50.599 | 25.368 |  | 1.995 | .052 |
| diamond size carat | 2995.155 | 25.357 | .998 | 118.118 | .000 |
| a. Dependent Variable: price in $ | | | | | | |

13. The default null hypothesis for the slope coefficient on diamond size is

a. the slope coefficient on size > the coefficient on the intercept (constant)

b. the slope coefficient on size = 0

c. the slope coefficient on size <= 0

d. none of the above

14. Given the information reported in the table above,

a. you should reject the null hypothesis for the slope coefficient for Size

b. you should reject the null hypothesis for the R Square coefficient

c. you should reject the null hypothesis for the dependent variable of Price

d. all of the above

15. What statistic provides an estimate of the average amount of sampling error?

a. standard deviation b. standard error

c. p-value d. z-value

16. The mismeasument of a value because of dishonest responses, data entry errors, or poor memory is

labeled as

a. sampling error b. confidence error

c. standard error d. none of the above

17. A source of measurement error that frequently arises in estimates of voting outcomes that we

discussed is

a. response bias due to some people/groups being more likely to respond than others

b. the size of samples used because only 1500 people are representing 100 million

c. the ambiguity of the questions that respondents face

d. the lack of randomization

18. We discussed the infamous military draft lottery in the early 1970s that suffered from

a. a lack of randomization

b. data entry problems

c. response bias

d. all of the above

19. When sample size increases,

a. non-sampling error decreases

b. confidence intervals increase in size

c. standard errors decrease in size

d. all of the above

20. Tests of statistical significance are conducted in

a. biomedical research as in drug studies

b. correlation analysis as in the gender and temperature data

c. crosstabulation analysis as in the Titanic data

d. all of the above

21. Put A for your answer

Correct Answers: 1c, 2d, 3b, 4a, 5a, 6c, 7c, 8a, 9d, 10c, 11c, 12c, 13b, 14a, 15b, 16d, 17a, 18a, 19c, 20d