**QUESTION 1**

1. Statistical significance is:

|  |  |  |
| --- | --- | --- |
|  | A. | a statement of probability |
|  | B. | a statement of certainty |

**4.5 points**

**QUESTION 2**

1. Steve’s result showed that *p* = .048. Using a .05 level of significance, this finding \_\_\_\_\_ statistically significant.

|  |  |  |
| --- | --- | --- |
|  | A. | is |
|  | B. | is not |

**4.5 points**

**QUESTION 3**

1. An all-inclusive group of people having something in common defines the:

|  |  |  |
| --- | --- | --- |
|  | A. | population |
|  | B. | sample |
|  | C. | statistic |
|  | D. | measurement scale |

**4.5 points**

**QUESTION 4**

1. If Omega University had a total student enrollment of 6000, and 250 of these students were selected for testing, the group being tested would constitute:

|  |  |  |
| --- | --- | --- |
|  | A. | the population |
|  | B. | a parameter |
|  | C. | the sample |
|  | D. | a statistic |

**4.5 points**

**QUESTION 5**

1. The standard deviation is a measure of

|  |  |  |
| --- | --- | --- |
|  | A. | how much on average the middle 50% of cases vary from the mean |
|  | B. | how much the highest and lowest scores vary from each other |
|  | C. | how much on average the scores vary from the mean |
|  | D. | central tendency |

**4.5 points**

**QUESTION 6**

1. The two most common descriptive statistics reported for **numeric** data are:

|  |  |  |
| --- | --- | --- |
|  | A. | frequency (*n*) and percentage |
|  | B. | mean and range |
|  | C. | mean and median |
|  | D. | mean and standard deviation |

**4.5 points**

**QUESTION 7**

1. Which is an example of nominal data?

|  |  |  |
| --- | --- | --- |
|  | A. | The type of car you drive |
|  | B. | Your ACT score |
|  | C. | The order you finish this quiz in (1st, 2nd, etc.) |
|  | D. | Your shoe size |

**4.5 points**

**QUESTION 8**

1. What do inferential statistics do?

|  |  |  |
| --- | --- | --- |
|  | A. | test to see if a significant difference or relationship exists |
|  | B. | describe a set of data |
|  | C. | tell if a study is valid |

**4.5 points**

**QUESTION 9**

1. A paired samples*t* test compares:

|  |  |  |
| --- | --- | --- |
|  | A. | The means from 2 different groups |
|  | B. | The relationship between 2 groups |
|  | C. | The amount of spread around the mean |
|  | D. | The means of 2 sets of scores that come from the same group |

**4.5 points**

**QUESTION 10**

1. Why should you use an ANOVA instead of multiple *t* tests?

|  |  |  |
| --- | --- | --- |
|  | A. | To increase reliability |
|  | B. | To decrease the validity |
|  | C. | To increase probable cause |
|  | D. | To decrease the chance of Type 1 error |

**4.5 points**

**QUESTION 11**

1. Sometimes you need to follow up an ANOVA with a post hoc test. When do you need to use a follow-up test?

|  |  |  |
| --- | --- | --- |
|  | A. | When there are more than 2 groups |
|  | B. | When the result is significant |
|  | C. | When the p-value is only slightly higher than .05 |
|  | D. | Both a and b |
|  | E. | Both b and c |

**4.5 points**

**QUESTION 12**

1. What does a Tukey test do?

|  |  |  |
| --- | --- | --- |
|  | A. | Tells you if you need a follow-up test. |
|  | B. | Tells you if you ran the correct test. |
|  | C. | Compares the groups to each other one pair at a time to see where the difference is. |

**4.5 points**

**QUESTION 13**

1. What does a factorial ANOVA do that a one-way ANOVA doesn’t do?

|  |  |  |
| --- | --- | --- |
|  | A. | Makes within-subjects comparisons (e.g., can compare pre-tests and post-tests). |
|  | B. | Makes comparisons between multiple sets of groups (multiple independent variables). |
|  | C. | Looks for relationships as well as differences. |

**4.5 points**

**QUESTION 14**

1. A normal curve always has

|  |  |  |
| --- | --- | --- |
|  | A. | a greater frequency of scores below the mean than above the mean. |
|  | B. | a greater frequency of scores around the center (the mean) than in the tails. |
|  | C. | a greater frequency of scores above the mean than below the mean. |
|  | D. | a greater frequency of scores in the tails than around the center. |

**4.5 points**

**QUESTION 15**

1. Under the normal curve, 68% of the cases must always fall

|  |  |  |
| --- | --- | --- |
|  | A. | above the mean. |
|  | B. | between +/- 1 standard deviation units from the mean. |
|  | C. | between +/- 2 standard deviation units from the mean. |
|  | D. | all of these, depending on the particular shape of the curve. |

**4.5 points**

**QUESTION 16**

1. What does a Pearson *r* correlation test?

|  |  |  |
| --- | --- | --- |
|  | A. | The relationship between 2 variables. |
|  | B. | The relationship between 3 variables. |
|  | C. | The difference between 2 groups. |
|  | D. | The difference between 2 variables. |

**4.5 points**

**QUESTION 17**

1. When the null hypothesis is not accepted, then we assume that

|  |  |  |
| --- | --- | --- |
|  | A. | there is a true difference (or relationship) between groups |
|  | B. | there’s not a true difference (or relationship) between groups |

**4.5 points**

**QUESTION 18**

1. Which of the following cannot be a Pearson *r* value?

|  |  |  |
| --- | --- | --- |
|  | A. | -.80 |
|  | B. | .72 |
|  | C. | .0 |
|  | D. | 2.1 |

**4.5 points**

**QUESTION 19**

1. When variable A correlates strongly with B, then

|  |  |  |
| --- | --- | --- |
|  | A. | A has caused B |
|  | B. | B has caused A |
|  | C. | variable B correlates strongly with A |
|  | D. | none of these |

**4.5 points**

**QUESTION 20**

1. What does a one-way ANOVA do?

|  |  |  |
| --- | --- | --- |
|  | A. | Looks for relationships as well as differences. |
|  | B. | Compares 3 groups on one interval variable. |
|  | C. | Compares 2 or more groups on 2 interval variables. |
|  | D. | Compares 2 or more groups on one interval variable while factoring out other variables. |
|  | E. | Compares 2 or more groups on one interval variable. |

**4.5 points**

**QUESTION 21**

1. Answer the following questions from our *Class Database* study using the list of statistics below. Which test will answer the question? If a question has more than one correct answer, you only have to give one. You don’t have to run the test, just name the correct test.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | |  | Did students in the 3 condition groups score similarly on their math posttest? | |  | The three groups answered the survey question differently (based on the one-way ANOVA), but which group(s) was (were) different from which? | |  | Did the participants improve their scores on the reading test from pretest to posttest? | |  | Are students’ reading levels and reading pretest scores related? | |  | Did males and females score differently on the math posttest? | | |  |  | | --- | --- | | A. | Tukey test | | B. | factorial ANOVA | | C. | Pearson *r* correlation | | D. | One-way ANOVA | | E. | one-sample *t* test | | F. | Paired samples*t* test | | G. | Independent samples*t* test | |

**15 points**

**QUESTION 22**

1. Look at the paired samples*t* test comparing the Q2PRE and Q2POST responses. Use the SPSS output given to answer the following:

| **Paired Samples Test** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| Pair 1 | Q2PRE – Q2POST | -.609 | 1.000 | .147 | -.906 | -.312 | 5.24 | 45 | .045 |

2. Is the difference significant?

|  |  |  |
| --- | --- | --- |
|  | A. | Yes |
|  | B. | No |

**4.5 points**

**QUESTION 23**

1. Look at the paired samples *t* test comparing the Q2PRE and Q2POST responses. Use the SPSS output given to answer the following:

| **Paired Samples Test** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
| Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| Pair 1 | Q2PRE – Q2POST | -.609 | 1.000 | .147 | -.906 | -.312 | 5.24 | 45 | .045 |

2. What is the *t* value?
3. 

**4.5 points**

**QUESTION 24**

1. Use the correlation between RLEVEL and RCPRE to answer the following question:

| **Correlations** | | | |
| --- | --- | --- | --- |
|  | | RLEVEL | RCPRE |
| RLEVEL | Pearson Correlation | 1 | .723\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 100 | 100 |
|  | | | |

1. What is the correlation?
2. 

**4.5 points**

**QUESTION 25**

1. Use the correlation between RLEVEL and RCPR to answer the following question:

| **Correlations** | | | |
| --- | --- | --- | --- |
|  | | RLEVEL | RCPRE |
| RLEVEL | Pearson Correlation | 1 | .723\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 100 | 100 |
|  | | | |

1. Is it significant?

|  |  |  |
| --- | --- | --- |
|  | A. | Yes |
|  | B. | No |

**4.5 points**

**QUESTION 26**

1. Use the correlations below to answer the following question about these survey questions:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | Q9 | Q10 | Q11 | Q12 |
| Q13 | Pearson Correlation | -.690 | .521 | -.328 | -.005 |
| Sig. (2-tailed) | .007 | .089 | .430 | .850 |
| N | 47 | 47 | 47 | 47 |

1. Which **correlation** is the strongest?

|  |  |  |
| --- | --- | --- |
|  | A. | Q9 |
|  | B. | Q10 |
|  | C. | Q11 |
|  | D. | Q12 |

**4.5 points**

**QUESTION 27**

1. Use the correlations below to answer the following question about these survey questions:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | Q9 | Q10 | Q11 | Q12 |
| Q13 | Pearson Correlation | -.690 | .521 | -.328 | -.005 |
| Sig. (2-tailed) | .007 | .089 | .430 | .850 |
| N | 47 | 47 | 47 | 47 |

1. Which **correlation** is in the "no correlation" range?

|  |  |  |
| --- | --- | --- |
|  | A. | Q9 |
|  | B. | Q10 |
|  | C. | Q11 |
|  | D. | Q12 |

**4.5 points**

**QUESTION 28**

1. Use the correlations below to answer the following question about these survey questions:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | Q9 | Q10 | Q11 | Q12 |
| Q13 | Pearson Correlation | -.690 | .521 | -.328 | -.005 |
| Sig. (2-tailed) | .007 | .089 | .430 | .850 |
| N | 47 | 47 | 47 | 47 |

1. Which survey question is significantly related to Q13?

|  |  |  |
| --- | --- | --- |
|  | A. | Q9 |
|  | B. | Q10 |
|  | C. | Q11 |
|  | D. | Q12 |

**4.5 points**

**QUESTION 29**

1. The following one-way ANOVA shows the comparison of 4 groups of participants on their Q3 responses.

| **ANOVA** | | | | | |
| --- | --- | --- | --- | --- | --- |
| Q3 | | | | | |
|  | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 6.864 | 3 | 2.288 | 2.99 | .022 |
| Within Groups | 29.689 | 43 | .690 |  |  |
| Total | 36.553 | 46 |  |  |  |

2. Is there a significant difference between the groups?

|  |  |  |
| --- | --- | --- |
|  | A. | Yes |
|  | B. | No |

**4.5 points**

**QUESTION 30**

1. The following one-way ANOVA shows the comparison of 4 groups of participants on their Q3 responses.

| **ANOVA** | | | | | |
| --- | --- | --- | --- | --- | --- |
| Q3 | | | | | |
|  | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 6.864 | 3 | 2.288 | 2.99 | .022 |
| Within Groups | 29.689 | 43 | .690 |  |  |
| Total | 36.553 | 46 |  |  |  |

2. Is a Tukey test required?

|  |  |  |
| --- | --- | --- |
|  | A. | Yes |
|  | B. | No |

**4.5 points**

**QUESTION 31**

1. The following one-way ANOVA shows the comparison of 4 groups of participants on their Q3 responses.

| **ANOVA** | | | | | |
| --- | --- | --- | --- | --- | --- |
| Q3 | | | | | |
|  | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 6.864 | 3 | 2.288 | 2.99 | .022 |
| Within Groups | 29.689 | 43 | .690 |  |  |
| Total | 36.553 | 46 |  |  |  |

2. What are the degrees of freedom (which ones would you report)?

|  |
| --- |
| For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).  Paragraph  Arial  10pt  P  0 WORDS[POWERED BY TINY](https://www.tiny.cloud/?utm_campaign=editor_referral&utm_medium=poweredby&utm_source=tinymce&utm_content=v5) |