**Test 5 (Write your name scantron, 2 points off if not)**

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

$30; $70; $40; $60; $50

1. The **median** monthly expense is

a. $30 b. $40

c. $50 d. none of the above

2. The mean monthly expense is

a. $45 b. $50

c. $65 d. none of the above

3. The standard deviation of monthly expense is about

a. $15 b. $10

c. $5 d. $20

4. The range is

a. $10 b. $20

c. $40 d. none of the above

**Table Z. Hypothesis Test for Units Sold (in thousands)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **One-Sample Statistics** | | | | |
|  | N | Mean | Std. Deviation | Std. Error Mean |
| Units sold in thousands | 532 | 51.9702 | 10.25809 | .44474 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **One-Sample Test** | | | | | | |
|  | Test Value = 50 | | | | | |
| t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| Lower | Upper |
| Units sold in thousands | 4.430 | 531 | .000 | 1.97017 | 1.0965 | 2.8438 |

5. The data in the Table Z indicate that

a. the population mean units sold is 51.97

b. the average sampling error for the mean units sold is 10.25

c. null hypothesis being tested is that the mean units sold equals 51.97

d. none of the above

6. Using the data in the Table Z, you can conclude that

a. the null hypothesis should be rejected because the p-value is below 0.05

b. the null hypothesis should be accepted because the p-value is above 0.05

c. the null hypothesis should be rejected because the p-value is above 0.05

d. the null hypothesis should be accepted because the p-value is below 0.05

**Table Y Mean Attendance at WKU Home Games**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Group Statistics** | | | | | |
|  | UKGame | N | Mean | Std. Deviation | Std. Error Mean |
| Attendance | 0 | 98 | 4686.84 | 1346.824 | 136.050 |
| 1 | 65 | 5050.85 | 1432.109 | 177.631 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Independent Samples Test** | | | | | | |
|  | | t-test for Equality of Means | | | | |
| t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference |
| Attendance | Equal variances assumed | -1.647 | 161 | .101 | -364.009 | 220.968 |
| Equal variances not assumed | -1.627 | 131.300 | .106 | -364.009 | 223.746 |

The SPSS above shows on attendance at home WKU basketball games on dates with UK Game (=1) and without UKGame (=0).

7. The data in the Table Y indicate that

a. there were 98 WKU games in the sample on nights with UK games

b. the average sampling error for the mean of UK game nights is about 177

c. the average sampling error for the mean of non-UK game nights is about 1346

d. none of the above

8. Using the data in the Table Y, you can conclude that the null hypothesis being tested is

a. that the mean of attendance with UK Game = mean attendance without UK Game

b. that the variances of attendance are equal on nights with and without UK Games

c. that the mean of attendance on UK Game nights is less than mean attendance on non-UK Game nights

d. none of the above

9. The estimated difference in the mean of attendance is

a. -1.64 b. -364

c. 4686 d. 220

10. Using the data in the Table Y, you can conclude that

a. the null hypothesis should be rejected because the p-value is below 0.05

b. the null hypothesis should be accepted because the p-value is above 0.05

c. the null hypothesis should be rejected because the p-value is above 0.05

d. the null hypothesis should be accepted because the p-value is below 0.05

11. 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

12. 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

13. Suppose that a random sample of 100 WKU students yielded an mean age of 20.0 with a standard deviation of 4.0 and a standard error of the sample mean of 0.4. The 95% confidence interval for the sample mean (the “margin of error”) would be about

a. 20 +- 1.5 b. 20 +- 0.4

c. 20 +- 3 d. 20 +- 0.8

**Table X. Regression of Store Sales Quantity (thousands) and Age of Store (years)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Coefficientsa** | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 51.519 | .780 |  | 66.030 | .000 |
| Age of store location (years) | .055 | .078 | .031 | .703 | .482 |
| a. Dependent Variable: Units sold in thousands | | | | | | |

14. Given the information reported in the table above,

a. the null hypothesis being tested is that the slope coefficient for store age equals 0.055

b. the p-value for the slope coefficient for store age is 0.000

c. the average sampling error for the slope coefficient for store age is 0.078

d. none of the above

15. The Current Population Survey conducted by the Bureau of Labor Statistics to assess employment and

unemployment in the U.S. found that

a. data entry errors from the survey contributed to significant errors

b. individuals tended to self-select themselves in non-random ways from the magazine sources used

c. small wording choices led to substantially different responses

d. all of the above

16. Which of the following is an example that even samples that are seemingly random may suffer from

selection bias problems:

a. 1936 Literary Digest episode

b. Coke v. New Coke episode

c. 1970 Draft Lottery episode

d. all of the above

17. A source of non-sampling measurement error that frequently arises in estimates of voting outcomes in

polling by organizations such as Gallup is that

a. they do not attempt to generate random samples

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

c. the ambiguity of the questions that respondents face

d. none of the above

18. In hypothesis tests are conducted in biomedical, scientific, and social science research, typically

a. the likelihood of accepting a false null is made set low

b. the data is generated through experiments

c. a cutoff probability of Type I error of 0.20 is used

d. none of the above

19. The standard deviation is

a. an estimate of the average amount of sampling error

b. an estimate of how spread out the data is around the mean

c. an estimate of how different the data is from the null hypothesis

d. none of the above

20. Criminal court cases provide an analogy to hypothesis testing in statistics. In such cases, the accused

party is supposed to be presumed innocent by the jury before evidence is presented and only convicted in

with very strong evidence against innocence. This effectively tries to minizime

a. Type I error b. Type II error

c. Type III error d. all of the above

21. Put A for your answer

**Correct Answers**

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