

Started on Wednesday, November 4, 2020, 4:06 PM

State Finished

Completed on Wednesday, November 4, 2020, 5:19 PM

Time taken 1 hour 12 mins

Grade 20.0 out of 27.0 (74%)

Question 1

Complete

Not graded

This first question must be answered for you to get credit for this exam.

I certify that I am taking this exam independently and that I have not received nor given unauthorized help on this exam, which would be a violation of the Academic Integrity Policy and subject to the penalties described on the syllabus. By clicking "true," I affirm that I am an honest student who completed this exam with integrity.

Select one:

- True
 False

Information**Sampling from Normal Distribution (Chapter 8)**

Select the closest answer.

Information

Use the following Excel file "Baseball 2007 Data" for these problems, which reports information on the 30 Major League Baseball teams for the 2007 season.

[Excel Baseball Data File \(click this link\)](#)

Question 2

Correct

1.0 points out of 1.0

For the **size** of the baseball stadium, assume that we know that the mean size is 45000 and the population standard deviation to be 5800. What is the probability that the stadium size is between 41750 and 49000?

Select one:

- a. 50.20%
 b. 97.05%
 c. 95.00%
 d. 100%

**Question 3**

Correct

1.0 points out of 1.0

For the **size** of the baseball stadium, assume that we know that the mean size is 45000 and the population standard deviation to be 5800. What is the probability that the stadium size is within 715 of the mean?

Select one:

- a. 65.50%
 b. 50.00%
 c. 23.38%
 d. 43.45%



Question 4

Correct

1.0 points out of 1.0

For the **size** of the baseball stadium, assume that we know that the mean size is 45000 and the population standard deviation to be 5800. What is the probability that the stadium size is greater than 43975?

Select one:

- a. 83.28%
 b. 17.25%
 c. 40.45%
 d. 23.38%

**Information****Estimation and Confidence Intervals (Chapter 9)**
Select the closest answer.**Information**

Continue using the same Excel baseball data set.

Question 5

Incorrect

0.0 points out of 1.0

Develop a 95 percent confidence interval for the mean number of stolen bases (**SB Column**) per team assuming that you do not know the population standard deviation.

Select one:

- a. 84.62, 109.91
 b. 82.95, 111.59
 c. 86.76, 107.77
 d. 85.15, 109.39

**Question 6**

Correct

1.0 points out of 1.0

Develop a 95 percent confidence interval for the mean number of errors committed (**Errors Column**) per team assuming that you do not know the population standard deviation.

Select one:

- a. 95.22, 103.98
 b. 94.38, 104.82
 c. 95.08, 104.12
 d. 94.15, 105.05

**Question 7**

Correct

1.0 points out of 1.0

Develop a 95 percent confidence interval for the mean number of home runs (**HR Column**) per team assuming that you do not know the population standard deviation.

Select one:

- a. 153.9, 176.56
 b. 155.82, 174.65
 c. 150, 200
 d. 154.38, 176.09

**Question 8**

Question 8

Correct

1.0 points out of 1.0

Develop a 95 percent confidence interval for the mean number of stolen bases (**SB column**) per team assuming that you know the population standard deviation to be 40.0.

Select one:

- a. 84.62, 109.91
- b. 82.95, 111.59
- c. 85.25, 109.28
- d. 86.76, 107.77



Question 9

Correct

1.0 points out of 1.0

Develop a 95 percent confidence interval for the mean number of home runs (**HR Column**) per team assuming that you know the **population standard deviation to be 30**.

Select one:

- a. 150, 200
- b. 154.5, 176.0
- c. 155.82, 174.65
- d. 156.22, 174.24



Question 10

Correct

1.0 points out of 1.0

Develop a 95 percent confidence interval for the mean number of errors committed (**Errors Column**) per team assuming that you know the population standard deviation to be 15.0.

Select one:

- a. 95.10, 104.10
- b. 94.15, 105.05
- c. 94.23, 104.97
- d. 95.22, 103.98



Information

One Sample Test of Hypothesis (Chapter 10)
Select the closest answer.

Information

Continue using the same Excel baseball data set.

Question 11

Incorrect

0.0 points out of 1.0

Use the baseball Excel File.

The baseball commissioner believes that the average attendance is less than 2,300,000 per team. You decide to conduct a test of hypothesis to determine whether the mean attendance (**Attendance Column**) was more than 2,300,000 per team. Use the 5% level of significance. Note: We do not know the population standard deviation.

Select one:

- a. $p = .700\%$. Do not reject the null. The mean attendance is less than 2.3 million.
- b. $p = 99.30\%$. Do not reject the null. The mean attendance is less than 2.3 million.
- c. $p = .700\%$. Reject the null. The mean attendance is more than 2.3 million.
- d. $p = 99.30\%$. Reject the null. The mean attendance is more than 2.3 million.



Question 12

Correct

1.0 points out of 1.0

Use the baseball Excel File.

Conduct a test of hypothesis to determine whether the mean salary (**Salary column**) of the teams was different than \$75.0 million. Use the 5% level of significance. Note: We do not know the populations standard deviation.

Select one:

- a. $p = 19.2\%$. Do not reject the null. The mean salary could be \$75 million. ✓
- b. $p = 18.16\%$. Do not reject the null. The mean salary could be \$75 million.
- c. $p = 19.2\%$. Reject the null. The mean salary is different than \$75 million.
- d. $p = 18.16\%$. Reject the null. The mean salary is different than \$75 million.

Information

Two Sample Test of Hypothesis (Chapters 11 & 12)
Select the closest answer.

Information

Continue using the Excel file "Baseball 2007 Data" for these problems.

Question 13

Correct

1.0 points out of 1.0

At the .10 significance level, is there a difference in the variation in team salary (**Salary Column**) among the American and National league teams (**League Column**)? (i.e., are their variances equal?)

Select one:

- a. $p = .059$. Do not reject the null. The variances are equal.
- b. There is not enough data to decide this.
- c. $p = .059$. Reject the null, The variances are not equal. ✓
- d. $p = .094$. Do not reject the null. The variances are equal.

Question 14

Incorrect

0.0 points out of 1.0

Divide the data into two groups, attendance less than 2.5 million and attendance greater than 2.5 million.

At the .05 significance level, is there a difference in the means in team salary (**Salary Column**) among the these two groups? (i.e., are their means equal?) Note: Use a 10% level of significance to test that the variances are equal.

Select one:

- a. $p = .000$. Do not reject the null. The means are equal.
- b. $p = .000$. Reject the null. The means are not equal.
- c. $p = .112$. Do not reject the null. The means are equal. ✗
- d. $p = .112$. Reject the null, The means are not equal.

Question 15

Incorrect

0.0 points out of 1.0

Divide the data into two groups, attendance less than 2.5 million and attendance greater than 2.5 million.

At the .10 significance level, is there a difference in the variation in team salary (**Salary Column**) among the these two groups? (i.e., are their variances equal?)

Select one:

- a. $p = .100$. Do not reject the null. The variances are equal. ✗

- b. $p = .112$. Do not reject the null. The variances are equal.
- c. $p = .100$. Reject the null. The variances are not equal.
- d. $p = .112$. Reject the null, The variance are not equal.

Question 16

Incorrect

0.0 points out of 1.0

At the .10 significance level, is there a difference in the means in team salary (**Salary Column**) among the American and National league teams? (i.e., are their means equal?) Note: Use a 5% level of significance to test that the variances are equal.

Select one:

- a. $p = .149$. Do not reject the null. The means are equal. ✘
- b. $p = .149$. Reject the null, The means are not equal.
- c. $p = .136$. Reject the null, The means are not equal.
- d. $p = .136$. Do not reject the null. The means are equal.

Information**Regression and Correlation (Chapter 13)****Information**

Below is a table of individual's salaries and some characteristics. For these questions on Regression and Correlation, use the "**Bettendorf Salary**" data and the "**Experience**" data. We will explore whether salaries are dependent upon experience.

[Here is a link the to dataset Excel file](#) that you can use for these problems, if you prefer.

Individual	Bettendorf Salary	Experience (X1)	Education (X2)	Sex (X3)
1	53600	5.5	4.0	F
2	52500	9.0	4.0	M
3	58900	4.0	5.0	F
4	59000	8.0	4.0	M
5	57500	9.5	5.0	M
6	55500	3.0	4.0	F
7	56000	7.0	3.0	F
8	52700	1.5	4.5	F
9	65000	8.5	5.0	M
10	60000	7.5	6.0	F
11	56000	9.5	2.0	M
12	54900	6.0	2.0	F
13	55000	2.5	4.0	M
14	60500	1.5	4.5	M

Question 17

Correct

1.0 points out of 1.0

What is the "coefficient of determination"?

Select one:

- a. 1.093
- b. .036 ✔
- c. .128
- d. .305

Question 18

Correct

1.0 points out of 1.0

What is the "slope" of the linear relationship?

Select one:

- a. 223.0
- b. 425
- c. 498.0
- d. .305

**Question 19**

Correct

1.0 points out of 1.0

What is the "Intercept" of the linear relationship?

Select one:

- a. 50890.2
- b. 424
- c. 55613.5
- d. 1.109

**Question 20**

Correct

1.0 points out of 1.0

What is the "correlation coefficient"?

Select one:

- a. .949
- b. .190
- c. .357
- d. .305

**Question 21**

Correct

1.0 points out of 1.0

What can you conclude about the relationship?

Select one:

- a. There is a weak negative relationship between the data.
- b. There is a weak positive relationship between the data.
- c. There is a strong negative relationship between the data.
- d. There is a strong positive relationship between the data.

**Question 22**

Incorrect

0.0 points out of 1.0

At the 10% level of significance, would you claim that the data is correlated?

Select one:

- a. Yes, the data is correlated.
- b. There is insufficient data to answer this question.
- c. I would claim that there is a strong negative relationship between the data.
- d. I would claim that there is a weak negative relationship between the data.
- e. No, the data is not correlated.

**Question 23**

Correct

1.0 points out of 1.0

If a person had six (6) years experience, what would you predict the salary to be?

Select one:

1.0 points out
of 1.0

- a. 48,200
- b. 51,323
- c. 9,181
- d. 56,952
- e. 53,878



Information

Multiple Regression (Chapter 14)

Information

For these questions on Multiple Regression, use the **Bettendorf** salary data and the "**Experience**," "**Education**," and "**Sex**" data. We will explore whether salaries are dependent on these three variables. For Sex, use a zero (0) for females (F) and a one (1) for males.

Question 24

Correct

1.0 points out
of 1.0

What is the coefficient of determination between the three predictors taken as a group and annual salary.

Select one:

- a. .771
- b. .323
- c. .522
- d. .772

**Question 25**

Correct

1.0 points out
of 1.0

At the 5% level of significance, is there a relationship in the population between the three predictors taken as a group and the annual salary for teachers?

Select one:

- a. 50/50 chance that there is.
- b. No
- c. Cannot be determined from the data
- d. Yes

**Question 26**

Correct

1.0 points out
of 1.0

Let X_1 = experience, X_2 = Education, and X_3 = Sex, what is the multiple regression equation?

Select one:

- a. $Y = 48951.9 + 195.3(X_1) + 1480.6(X_2) + 1595.1(X_3)$
- b. $Y = 41462.6 + 337.3(X_1) + 2169.3(X_2) + 3097.0(X_3)$
- c. $Y = 42410.2 + 403.5(X_1) + 1856.4(X_2) + 2964.4(X_3)$
- d. $Y = 2809 + 228.5(X_1) + 560.6(X_2) + 1287.4(X_3)$

**Question 27**

Incorrect

0.0 points out
of 1.0

Which predictor(s), if any, would you remove because it does not contribute to the regression models, using the 90% confidence level, $\alpha = .10$?

Select one:

- a. Education
- b. Sex and Experience
- c. Experience
- d. None



Information

Optimization - Transportation Model

Question 28

Correct

1.0 points out of 1.0

Drew Rosen Corp owns factories in three towns, which distribute to three retail locations. The following table summarizes factory availabilities, projected store demands, and unit shipping costs. What is the resultant lowest dollar cost.

See [this Excel file](#) for data, or this picture below.

Data	Decatur	Minneapolis	Carbondale	Dummy	Supply
Blue Earth	20	17	21		250
Ciro	25	27	20		200
Des Moines	22	25	22		350
Demand	300	200	150	150	800 \ 800

- a. 15808
- b. 17500
- c. 16695
- d. 12900



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Any questions about Exam2 ▶