|  |
| --- |
| The mean square is the sum of squares divided by |
| |  |  | | --- | --- | | Selected Answer: | b.  its corresponding degrees of freedom. | | Answers: | a.  the total number of observations. | |  | b.  its corresponding degrees of freedom. | |  | c.  its corresponding degrees of freedom minus one. | |  | d.  the total number of replications. | |

* **Question 2**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In a completely randomized experimental design involving five treatments, 13 observations were recorded for each of the five treatments (a total of 65 observations). Also, the design provided the following information.  ​   |  | | --- | | SSTR = 200 (Sum of Squares Due to Treatments) | | SST = 800 (Total Sum of Squares) |   ​  The number of degrees of freedom corresponding to within-treatments is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  60. | | Answers: | a.  5. | |  | b.  4. | |  | c.  60. | |  | d.  59. | |  |  |  |

* **Question 3**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In a completely randomized design involving four treatments, the following information is provided.   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | **Treatment 1** | **Treatment 2** | **Treatment 3** | **Treatment 4** | | Sample Size | 50 | 18 | 15 | 17 | | Sample Mean | 32 | 38 | 42 | 48 |   ​  The overall mean (the grand mean) for all treatments is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  37.3. | | Answers: | a.  37.0. | |  | b.  37.3. | |  | c.  48.3. | |  | d.  40.0. | |  |  |  |

* **Question 4**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | An ANOVA procedure is used for data obtained from five populations. Five samples, each comprised of 20 observations, were taken from the five populations. The numerator and denominator (respectively) degrees of freedom for the critical value of *F* are |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  4 and 95. | | Answers: | a.  5 and 20. | |  | b.  4 and 99. | |  | c.  4 and 95. | |  | d.  4 and 20. | |  |  |  |

* **Question 5**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | The process of allocating the total sum of squares and degrees of freedom to the various components is called |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  partitioning. | | Answers: | a.  blocking. | |  | b.  partitioning. | |  | c.  factoring. | |  | d.  replicating. | |  |  |  |

* **Question 6**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Part of an ANOVA table is shown below.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Source of Variation** | **Sum of Squares** | **Degrees of Freedom** | **Mean Square** | ***F*** | | Between Treatments | 180 | 3 |  |  | | Within Treatments (Error) |  |  |  |  | | TOTAL | 480 | 18 |  |  |   ​  The test statistic is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  3.00. | | Answers: | a.  3.00. | |  | b.  6.00. | |  | c.  2.67. | |  | d.  2.25. | |  |  |  |

* **Question 7**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In ANOVA, which of the following is not affected by whether or not the population means are equal? |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  within-treatments estimate of *σ*2 | | Answers: | a. | |  | b.  between-treatments estimate of *σ*2 | |  | c.  within-treatments estimate of *σ*2 | |  | d.  ratio of between- and within-treatments estimate of *σ*2 | |  |  |  |

* **Question 8**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Consider the following information.  ​   |  |  | | --- | --- | | SSTR = 6750 | *H*0: *μ*1 =*μ*2 =*μ*3 =*μ*4 | | SSE = 8000 | *H*a: At least one mean is different | |  |  |   ​  If *n* = 5 for each treatment, the mean square due to error (MSE) equals |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | d.  500. | | Answers: | a.  400. | |  | b.  1687.5. | |  | c.  2250. | |  | d.  500. | |  |  |  |

* **Question 9**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In an analysis of variance, one estimate of *σ*2 is based upon the differences **between** the treatment means and the |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  overall sample mean. | | Answers: | a.  sum of observations. | |  | b.  overall sample mean. | |  | c.  means of each sample. | |  | d.  population means. | |  |  |  |

* **Question 10**

0.5 out of 0.5 points

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| --- | --- | --- | --- | --- |
|  |  | | | |
|  | The required condition for using an ANOVA procedure on data from several populations is that the |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  sampled populations have equal variances. | | Answers: | a.  sampled populations have equal means. | |  | b.  response variables from samples are all uniform. | |  | c.  sampled populations have equal variances. | |  | d.  selected samples are dependent on each other. | |  |  |  |

* **Question 11**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | To test whether or not there is a difference between treatments A, B, and C, a sample of 12 observations has been randomly assigned to the 3 treatments. You are given the results below.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Treatment** | | **Observations** | | | | A | 20 | 30 | 25 | 33 | | B | 22 | 26 | 20 | 28 | | C | 40 | 30 | 28 | 22 |   ​  The mean square due to error (MSE) equals |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  34. | | Answers: | a.  34. | |  | b.  1.872. | |  | c.  36. | |  | d.  5.86. | |  |  |  |

* **Question 12**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | The number of times each experimental condition is observed in a factorial design is known as |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  replication. | | Answers: | a.  replication. | |  | b.  blocking. | |  | c.  factor. | |  | d.  partition. | |  |  |  |

* **Question 13**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In an analysis of variance problem involving 3 treatments and 10 observations per treatment, SSE = 399.6. The MSE for this situation is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | d.  14.8. | | Answers: | a.  30.0. | |  | b.  133.2. | |  | c.  13.32. | |  | d.  14.8. | |  |  |  |

* **Question 14**

0.5 out of 0.5 points

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| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Part of an ANOVA table is shown below.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Source of Variation** | **Sum of Squares** | **Degrees of Freedom** | **Mean Square** | ***F*** | | Between Treatments | 64 |  |  | 8 | | Within Treatments (Error) |  |  | 2 |  | | Total | 100 |  |  |  |   ​  At a 5% level of significance, if we want to determine whether or not the means of the populations are equal, the conclusion of the test is that |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  not all means are equal. | | Answers: | a.  all means are equal. | |  | b.  some means may be equal. | |  | c.  not all means are equal. | |  | d.  some means will never be equal. | |  |  |  |

* **Question 15**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Part of an ANOVA table is shown below.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Source of Variation** | **Sum of Squares** | **Degrees of Freedom** | **Mean Square** | ***F*** | | Between Treatments | 64 |  |  | 8 | | Within Treatments (Error) |  |  | 2 |  | | Total | 100 |  |  |  |   ​  The number of degrees of freedom corresponding to within-treatments is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  18. | | Answers: | a.  22. | |  | b.  5. | |  | c.  18. | |  | d.  4. | |  |  |  |

* **Question 16**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In the analysis of variance procedure (ANOVA), "factor" refers to |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  the independent variable. | | Answers: | a.  the dependent variable. | |  | b.  the independent variable. | |  | c.  different levels of a treatment. | |  | d.  the critical value of *F*. | |  |  |  |

* **Question 17**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | An ANOVA procedure is used for data obtained from four populations. Four samples, each comprised of 30 observations, were taken from the four populations. The numerator and denominator (respectively) degrees of freedom for the critical value of *F* are |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  3 and 116. | | Answers: | a.  3 and 116. | |  | b.  3 and 30. | |  | c.  3 and 119. | |  | d.  4 and 30. | |  |  |  |

* **Question 18**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | To test whether or not there is a difference between treatments A, B, and C, a sample of 12 observations has been randomly assigned to the 3 treatments. You are given the results below.  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Treatment** | **Observations** | | | | | A | 20 | 30 | 25 | 33 | | B | 22 | 26 | 20 | 28 | | C | 40 | 30 | 28 | 22 |   ​  The null hypothesis for this ANOVA problem is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | d.  *μ*1= *μ*2= *μ*3. | | Answers: | a.  *μ*1= *μ*2. | |  | b.  *μ*1= *μ*2= ... = *μ*12. | |  | c.  *μ*1= *μ*2= *μ*3= *μ*4. | |  | d.  *μ*1= *μ*2= *μ*3. | |  |  |  |

* **Question 19**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In a completely randomized experimental design involving five treatments, 13 observations were recorded for each of the five treatments (a total of 65 observations). The following information is provided.  ​   |  | | --- | | SSTR = 200 (Sum of Squares Due to Treatments) | | SST = 800 (Total Sum of Squares) |   ​  The test statistic is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | d.  5.0. | | Answers: | a.  15. | |  | b.  3.75. | |  | c.  .2. | |  | d.  5.0. | |  |  |  |

* **Question 20**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Consider the following ANOVA table.  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Source of Variation** | **Sum of Squares** | **Degrees of Freedom** | **Mean Square** | ***F*** | | Between Treatments | 2073.6 | 4 |  |  | | Between Blocks | 6000 | 5 | 1200 |  | | Error |  | 20 | 288 |  | | Total |  | 29 |  |  |   ​  The null hypothesis is to be tested at the 5% level of significance. The null hypothesis |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  should not be rejected. | | Answers: | a.  should be rejected. | |  | b.  should not be rejected. | |  | c.  should be revised. | |  | d.  should not be tested. | |  |  |  |

* **Question 21**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | An experimental design where the experimental units are randomly assigned to the treatments is known as |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  completely randomized design. | | Answers: | a.  factor block design. | |  | b.  random factor design. | |  | c.  completely randomized design. | |  | d.  randomized treatment design. | |  |  |  |

* **Question 22**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Consider the following ANOVA table.  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Source of Variation** | **Sum of Squares** | **Degrees of Freedom** | **Mean Square** | ***F*** | | Between Treatments | 2073.6 | 4 |  |  | | Between Blocks | 6000 | 5 | 1200 |  | | Error |  | 20 | 288 |  | | Total |  | 29 |  |  |   ​  The sum of squares due to error equals |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | d.  5760. | | Answers: | a.  6000. | |  | b.  2073.6. | |  | c.  13833.6. | |  | d.  5760. | |  |  |  |

* **Question 23**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Which of the following is **not** a required assumption for the analysis of variance? |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  Populations under consideration have equal means. | | Answers: | a.  Populations under consideration have equal means. | |  | b.  At least 2 populations are under consideration. | |  | c.  The variance associated with the random variable must be the same for all populations. | |  | d.  The random variable of interest for each population has a normal probability distribution. | |  |  |  |

* **Question 24**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Consider the following information.  ​   |  |  | | --- | --- | | SSTR = 6750 | *H*0: *μ*1 =*μ*2 =*μ*3 =*μ*4 | | SSE = 8000 | *H*a: At least one mean is different | |  |  |   ​  *n* = 5 for each treatment. The null hypothesis is to be tested at the 5% level of significance. The null hypothesis |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  should be rejected. | | Answers: | a.  should be rejected. | |  | b.  should not be rejected. | |  | c.  was designed incorrectly. | |  | d.  cannot be tested. | |  |  |  |

* **Question 25**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | The critical *F* value with 8 numerator and 29 denominator degrees of freedom at *α* = .01 is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  3.20. | | Answers: | a.  3.33. | |  | b.  3.64. | |  | c.  3.20. | |  | d.  2.28. | |  |  |  |

* **Question 26**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Consider the following information.  ​   |  |  | | --- | --- | | SSTR = 6750 | *H*0: *μ*1 =*μ*2 =*μ*3 =*μ*4 | | SSE = 8000 | *H*a: At least one mean is different | |  |  |   ​  If *n* = 5 for each treatment, the test statistic to test the null hypothesis equals |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  4.50. | | Answers: | a.  4.50. | |  | b.  .84. | |  | c.  .22. | |  | d.  4.22. | |  |  |  |

* **Question 27**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In order to determine whether or not the means of two populations are equal, |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  either a *t* test or an analysis of variance can be performed. | | Answers: | a.  a chi-square test can be performed. | |  | b.  either a *t* test or an analysis of variance can be performed. | |  | c.  an analysis of variance must be performed. | |  | d.  a *t* test must be performed. | |  |  |  |

* **Question 28**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | The process of using the same or similar experimental units for all treatments is called |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  blocking. | | Answers: | a.  factoring. | |  | b.  blocking. | |  | c.  replicating. | |  | d.  partitioning. | |  |  |  |

* **Question 29**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | An ANOVA procedure is applied to data obtained from 6 samples where each sample contains 20 observations. The critical value of *F* occurs with |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  5 numerator and 114 denominator degrees of freedom. | | Answers: | a.  6 numerator and 114 denominator degrees of freedom. | |  | b.  5 numerator and 114 denominator degrees of freedom. | |  | c.  5 numerator and 20 denominator degrees of freedom. | |  | d.  6 numerator and 20 denominator degrees of freedom. | |  |  |  |

* **Question 30**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | An experimental design that permits simultaneous statistical conclusions about two or more factors is a |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  factorial design. | | Answers: | a.  factorial design. | |  | b.  randomized block design. | |  | c.  completely randomized design. | |  | d.  multiple block design. | |  |  |  |

* **Question 31**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In a completely randomized design involving three treatments, the following information is provided:   |  |  |  |  | | --- | --- | --- | --- | |  | **Treatment 1** | **Treatment 2** | **Treatment 3** | | Sample Size | 5 | 10 | 5 | | Sample Mean | 4 | 8 | 9 |   ​  The overall mean (the grand mean) for all the treatments is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | d.  7.25. | | Answers: | a.  4.89. | |  | b.  6.67. | |  | c.  7.00. | |  | d.  7.25. | |  |  |  |

* **Question 32**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | If we are testing for the equality of three population means, we should use the​ |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  ​test statistic *F*. | | Answers: | a.  ​test statistic *z*. | |  | b.  ​test statistic *F*. | |  | c.  ​test statistic *t*. | |  | d.  ​test statistic *χ*2. | |  |  |  |

* **Question 33**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | To test whether or not there is a difference between treatments A, B, and C, a sample of 12 observations has been randomly assigned to the 3 treatments. You are given the results below.  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Treatment** | | **Observations** | | | | A | 20 | 30 | 25 | 33 | | B | 22 | 26 | 20 | 28 | | C | 40 | 30 | 28 | 22 |   ​  The test statistic to test the null hypothesis equals |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  1.06. | | Answers: | a.  19.231. | |  | b.  1.06. | |  | c.  3.13. | |  | d.  .944. | |  |  |  |

* **Question 34**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In a completely randomized experimental design involving five treatments, 13 observations were recorded for each of the five treatments (a total of 65 observations). Also, the design provided the following information.  ​   |  | | --- | | SSTR = 200 (Sum of Squares Due to Treatments) | | SST = 800 (Total Sum of Squares) |   ​  The mean square due to error (MSE) is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  10. | | Answers: | a.  10. | |  | b.  600. | |  | c.  200. | |  | d.  50. | |  |  |  |

* **Question 35**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | In the ANOVA, treatments refer to |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  different levels of a factor. | | Answers: | a.  experimental units. | |  | b.  statistical applications. | |  | c.  different levels of a factor. | |  | d.  the dependent variables. | |  |  |  |

* **Question 36**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | An ANOVA procedure is used for data that was obtained from four sample groups each comprised of five observations. The degrees of freedom for the critical value of *F* are |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  3 and 16. | | Answers: | a.  3 and 20. | |  | b.  3 and 19. | |  | c.  3 and 16. | |  | d.  4 and 17. | |  |  |  |

* **Question 37**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | Consider the following ANOVA table.  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Source of Variation** | **Sum of Squares** | **Degrees of Freedom** | **Mean Square** | ***F*** | | Between Treatments | 2073.6 | 4 |  |  | | Between Blocks | 6000 | 5 | 1200 |  | | Error |  | 20 | 288 |  | | Total |  | 29 |  |  |   ​  The mean square due to treatments equals |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  518.4. | | Answers: | a.  1200. | |  | b.  518.4. | |  | c.  8294.4. | |  | d.  288. | |  |  |  |

* **Question 38**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | The independent variable of interest in an ANOVA procedure is called a |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  factor. | | Answers: | a.  response. | |  | b.  factor. | |  | c.  treatment. | |  | d.  partition. | |  |  |  |

* **Question 39**

0.5 out of 0.5 points

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | | |
|  | The critical *F* value with 6 numerator and 60 denominator degrees of freedom at *α* = .05 is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  2.25. | | Answers: | a.  2.25. | |  | b.  3.74. | |  | c.  2.37. | |  | d.  1.96. | |  |  |  |

* **Question 40**

0.5 out of 0.5 points

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|  |  | | | |
|  | Part of an ANOVA table is shown below.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Source of Variation** | **Sum of Squares** | **Degrees of Freedom** | **Mean Square** | ***F*** | | Between Treatments | 180 | 3 |  |  | | Within Treatments (Error) |  |  |  |  | | TOTAL | 480 | 18 |  |  |   ​  The mean square due to error (MSE) is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | a.  20. | | Answers: | a.  20. | |  | b.  18. | |  | c.  15. | |  | d.  60. | |  |  |  |

* **Question 41**

0.5 out of 0.5 points

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|  | In a completely randomized experimental design involving five treatments, 13 observations were recorded for each of the five treatments (a total of 65 observations). Also, the design provided the following information.  ​   |  | | --- | | SSTR = 200 (Sum of Squares Due to Treatments) | | SST = 800 (Total Sum of Squares) |   ​  The number of degrees of freedom corresponding to between-treatments is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  4. | | Answers: | a.  59. | |  | b.  60. | |  | c.  4. | |  | d.  5. | |  |  |  |

* **Question 42**

0.5 out of 0.5 points

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|  | The ANOVA procedure is a statistical approach for determining whether or not the means of |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  three or more populations are equal. | | Answers: | a.  two samples are equal. | |  | b.  two populations are equal. | |  | c.  three or more populations are equal. | |  | d.  two or more samples are equal. | |  |  |  |

* **Question 43**

0.5 out of 0.5 points

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|  |  | | | |
|  | To test whether or not there is a difference between treatments A, B, and C, a sample of 12 observations has been randomly assigned to the 3 treatments. You are given the results below.  ​   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Treatment** | | **Observations** | | | | A | 20 | 30 | 25 | 33 | | B | 22 | 26 | 20 | 28 | | C | 40 | 30 | 28 | 22 |   ​  The null hypothesis is to be tested at the 1% level of significance. The *p*-value is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | d.  greater than .1. | | Answers: | a.  between .01 to .025. | |  | b.  less than .01. | |  | c.  between .05 to .10. | |  | d.  greater than .1. | |  |  |  |

* **Question 44**

0 out of 0.5 points

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|  | Part of an ANOVA table is shown below.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Source of Variation** | **Sum of Squares** | **Degrees of Freedom** | **Mean Square** | ***F*** | | Between Treatments | 64 |  |  | 8 | | Within Treatments (Error) |  |  | 2 |  | | Total | 100 |  |  |  |   ​  The mean square due to treatments (MSTR) is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | b.  64. | | Answers: | a.  36. | |  | b.  64. | |  | c.  15. | |  | d.  16. | |  |  |  |

* **Question 45**

0.5 out of 0.5 points

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| --- | --- | --- | --- | --- |
|  |  | | | |
|  | When an analysis of variance is performed on samples drawn from *k* populations, the mean square due to treatments (MSTR) is |  |  |  |
| |  |  | | --- | --- | | Selected Answer: | c.  SSTR/(*k* - 1). | | Answers: | a.  SSTR/(*nT* - 1). | |  | b.  SSTR/*k*. | |  | c.  SSTR/(*k* - 1). | |  | d.  SSTR/*nT*. | |  |  |  |

Tuesday, March 10, 2020 3:32:00 PM PDT