

Unit 8 - Week 6

Course outline

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Assignment Detailed Solution

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Assignment 6

The due date for submitting this assignment has passed. **Due on 2020-03-11, 23:59 IST.**
 As per our records you have not submitted this assignment.

1) Refer the following and select the correct option 1 point

Statement 1: The Null and Alternative Hypotheses are mutually exclusive
 Statement 2: The Null and Alternative Hypotheses are collectively exhaustive

- Only Statement 1 is correct
- Only Statement 2 is correct
- Statement 1 and Statement 2 both are correct
- None of statements are correct

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: c.

2) In hypothesis testing, if we assume 1 point

$$H_0 : \mu = 0$$

$$H_1 : \mu \neq 0$$

it refers to

- Right tailed test.
- Left tailed test.
- Two tailed test.
- None of these are correct statements

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: c.

3) Type II Error means 1 point

- Rejects a true null hypothesis
- Fails to reject a false null hypothesis
- Accepts a true null hypothesis
- None of the these

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.

4) In experimentation the critical Z-statistic value is ± 1.96 and the computed value is 2.24, The decision of hypothesis testing is- 1 point

- Reject the null hypothesis
- Failed to reject the null hypothesis
- Data insufficient
- None of these

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: a.

5) The critical Z statistic value is maximum for 1 point

- 90% confidence level
- 95% confidence level
- 99% confidence level
- Same for all

Hint: Assume all other parameters to be same

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: c.

6) A soft drink manufacturer claims 500 ml drink per bottle. A random sample of 25 bottles showed the average to be = 503.5 ml. The company has specified the sample standard deviation to be 12 ml. If at $\alpha = 0.05$ (95% confidence level), the critical value of Z is 1.96. What should be the decision of hypothesis testing? 1 point

- Reject the null hypothesis
- Failed to reject the null hypothesis
- Can't say
- None of these

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.

7) A hypothesis is a claim (assumption) about the _____ 1 point

- Population Parameter
- Sample Statistic
- Both of these
- None of these

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: a.

8) Suppose we want to test our hypothesis at 95 % confidence level. In our computations, we found the p-value to be 0.001. What should be the decision of hypothesis testing 1 point

- Reject the null hypothesis
- Do not reject the null hypothesis
- Based on the p-value only we cannot test the hypothesis
- None of these

Hint: Assume all other parameters to be same

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: a.

9) For a given value of mean (μ), test statistic (Z), and standard deviation (σ). Select the correct option 1 point

- The confidence interval narrows down with the decrease in sample size
- The confidence interval narrows down with the increase in sample size
- The confidence interval widens with the increase in sample size
- None of these

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.

10) The formula used for pooled variance is 1 point

- $s_p = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 1}}$
- $s_p = \sqrt{\frac{n_1 s_1^2 + n_2 s_2^2}{n_1 + n_2 - 1}}$
- $s_p = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$
- $s_p = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2}}$

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: c.

11) Suppose that a mobile Manufacturer A claims that the battery life of their mobile is 45 minutes longer than the its competitor B. Two independent random samples of 100 mobiles of each kind are selected, and are run continuously until they get discharged. The sample average life for the mobiles by Manufacturer A is found to be 310 minutes. Whereas the sample average battery life for the mobiles by Manufacturer B is 256 minutes. Assume standard deviation for Manufacturer is 84 minutes and the same for Manufacturer B is 67 minutes. Is there evidence to substantiate the claim of Manufacturer A that the battery of their mobiles last, on average, at least 45 minutes longer than the batteries of the mobiles by Manufacturer B? Assume the critical test statistic value to be ± 1.96 .

Hint

No, the answer is incorrect.
 Score: 0
 Accepted Answers: (Type: String) No

12) A toy manufacturer wants to test whether a layout change is enough to increase the production. Following data has been collected to test it 1 point

Description	The number of production outlets inspected	Total number of products produced in a week	The sample standard deviation
Before the layout change	16	6598	844
After the layout change	13	6,870	669

I. Compute the pooled variance for the given data (assume population variances to be equal)

- 572918.22
- 594658.22
- 405800.22
- 556523.22

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: b.

13) You are a Quality Analyst at automobile manufacturing firm. You want to compare the quality of bearings received from two vendors (Vendor 1 and Vendor 2). You collect the following data for a CTQ (Critical to Quality) characteristic "Outer Diameter" of the bearing: 1 point

	Vendor 1	Vendor 2
Number	21	25
Mean	3.27	2.53
Variance	1.25	1.00

The computed F-statistic value is-

- 1.25
- 1.5625
- 1
- None of these

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: a.

14) The coefficient of correlation ranges 1 point

- From $-\infty$ to ∞
- From 0 to 10
- From -1 to 1
- From 0 to 0.5

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: c.

15) Which one of these is the assumption of linear regression line- 1 point

- The relationship between independent variable and dependent variable is linear
- Error values are statistically independent
- Error values are normally distributed for any given value of independent variable
- All of these

a.
 b.
 c.
 d.

No, the answer is incorrect.
 Score: 0
 Accepted Answers: d.