Assignment 4

The due date for submitting this assignment has passed. Due on 2020-02-26, 23:59 IST. As per our records you have not submitted this assignment.

1) The z-statistics can be applied when we know:  
   - the population mean  
   - the population standard deviation  
   - the sample standard deviation  
   - the sample mean  
   - Both sample mean and sample standard deviation

   No, the answer is incorrect.  
   Score: 0  
   Accepted Answers:  
   the population standard deviation

2) The relationship between z- and t-statistics is:  
   - At infinite readings, z-statistics converge to t-statistics.  
   - At 200 readings, the z-statistics converge to t-statistics  
   - T-statistics converge to z-statistics for an infinite number of measurements  
   - Z-statistics is not related to t-statistics at all  
   - T-statistics and z-statistics are the same.

   No, the answer is incorrect.  
   Score: 0  
   Accepted Answers:  
   T-statistics converge to z-statistics for an infinite number of measurements

3) The critical value of z at 95% confidence level is:  
   - ± 1.960 for a one tailed test

   1 point
Hypothesis testing and Finding Outliers - Part 02 (unit? unit=45&lesson=49)

Pooling of data (unit? unit=45&lesson=50)

Quiz : Assignment 4 (assessment? name=51)

Quantitative Methods in Chemistry : Week 4 Feedback Form (unit? unit=45&lesson=52)

Assignment 4 solutions (unit? unit=45&lesson=71)

Lecture materials (unit? unit=45&lesson=124)

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- ± 1.960 for a two tailed test
- ± 1.645 for a one tailed test
- ± 1.645 for a two tailed test
- ± 3.29 for a two tailed test

No, the answer is incorrect.
Score: 0
Accepted Answers:
± 1.960 for a two tailed test
± 1.645 for a one tailed test

4) The null hypothesis is to be rejected if:

- $Z_{calculated} < Z_{critical}$
- $Z_{calculated} > Z_{critical}$
- $t_{calculated} < t_{critical}$
- $t_{calculated} > t_{critical}$
- $(t_{calculated})^2 > (t_{critical})^2$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$Z_{calculated} > Z_{critical}$
$t_{calculated} > t_{critical}$

5) For a population of bacterial cells, it was observed that 0.5% of them died in 48 hours while 2.5% of the cells were dead after 54 hours. The average life of this population of cells will be:

- 54 hours
- 50 hours
- 74 hours
- 88 hours
- 78 hours

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

6) Suppose the weight of 35 students of X standard is recorded and the mean weight of this population was 44 kg and the standard deviation was 6 kg. The 95% confidence interval for this population will be:

- 40-48 kg
- 38-48 kg
- 42-49 kg
- 41-47 kg
- 42-46 kg

No, the answer is incorrect.
Score: 0
Accepted Answers:
42-46 kg

7) The pooled value of standard deviation ($s_{pooled}$) of the following three samples is:

<table>
<thead>
<tr>
<th>Sample 1</th>
<th>Sample 2</th>
<th>Sample 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001</td>
<td>822</td>
<td>750</td>
</tr>
<tr>
<td>1022</td>
<td>805</td>
<td>745</td>
</tr>
<tr>
<td>975</td>
<td>788</td>
<td>799</td>
</tr>
<tr>
<td>991</td>
<td>779</td>
<td>800</td>
</tr>
<tr>
<td>992</td>
<td>800</td>
<td>758</td>
</tr>
</tbody>
</table>

- 15.87
- 18.57
- 17.85
- 19.89
- 20.77

No, the answer is incorrect.
Score: 0
Accepted Answers:
20.77

8) Two different analytical methods were employed on each sample collected from different cities to estimate the amount of zinc in water (mg/l). This gave the following readings:

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Method 1</th>
<th>Method 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.35</td>
<td>0.3</td>
</tr>
<tr>
<td>2</td>
<td>0.94</td>
<td>1.25</td>
</tr>
<tr>
<td>3</td>
<td>2.76</td>
<td>2.56</td>
</tr>
<tr>
<td>4</td>
<td>3.53</td>
<td>3.98</td>
</tr>
<tr>
<td>5</td>
<td>4.99</td>
<td>5.35</td>
</tr>
<tr>
<td>6</td>
<td>7.77</td>
<td>8.8</td>
</tr>
<tr>
<td>7</td>
<td>10.81</td>
<td>10.68</td>
</tr>
<tr>
<td>8</td>
<td>10.92</td>
<td>10.91</td>
</tr>
</tbody>
</table>

The confidence level at which the two methods differ is/are:
- 95%
- 99%
- 90%
- Differs at all the above confidence levels
- No difference at any of the above confidence levels
9) The average weight 10 year old boys in a city is 31.7 kg. If a sample of 15 boys (who are 10 year old) from a locality had average weight of 31.0 kg and standard deviation of 1.1 kg, then the weight of the sample differs from that of population at confidence level(s) of:

- 90%
- 95%
- 99%
- 99.9%
- all the above
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
90%
95%

10) The mean value of a sample was found to be 159 and population standard deviation of that measurement 15. The minimum size of the sample needed to reduce its 95% confidence interval to below 10 is

- 5
- 7
- 10
- 9
- 11

No, the answer is incorrect.
Score: 0
Accepted Answers:
9