**THE TEXTILE ASSOCIATION (INDIA)**

**G.M.T.A. (REVISED) EXAMINATION – 2013**

**SECTION-C PAPER-IV(C-4)**

**APPLIED STATISTICS**

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**Date:** 26.12. 2013  
**Marks:** 100  
**Time:** 10 am to 1 pm

**Instructions:**
1. Attempt six questions out of which Q.1 is compulsory
2. Answer each next main question on new page
3. Figure to the right indicate full marks
4. Illustrate your answer with sketches and flow chart wherever necessary
5. Use of non-programmable electronic pocket calculator permissible.
6. Mobile and any other communication devices are not allowed in exam hall.
7. Assume suitable data wherever necessary.

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**Q.1.** Write Short Notes on any five of the following:
   i. Measure of Central Tendency and Dispersion.  
   ii. Probability  
   iii. Sampling Distributions  
   iv. Analysis of Variance  
   v. Regression  
   vi. Normal Curve  
   vii. Standard Deviation and CV%  
   viii. Curve Fitting.  

(20)

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**Q.2.**
   a. Define the terms mean, median, mode, mean deviation and percent mean deviation.  
   b. How frequency distribution is used in finding variation in count of a single yarn?  

(16)

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**Q.3.**
   a. Explain the properties of Normal, Binomial and Poisson distributions.  
   b. End breakages in spinning fits in which of the distributions mentioned above? Why?  

(16)

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**Q.4.**
   a. How will you apply the theory of normal distribution in deciding control limits?  
   b. What is Control Chart? Where it is used? Give an example.  

(16)

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**Q.5.**
   a. If two bags of cotton yarn cones are given and you need to verify whether they are identical, how will you proceed?  
   b. The test reports of two bags of cotton yarn are as follows. Whether they are identical or different?

<table>
<thead>
<tr>
<th>Metric</th>
<th>Bag – 1</th>
<th>Bag – 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count Ne</td>
<td>20.25</td>
<td>19.98</td>
</tr>
<tr>
<td>Number of cones tested</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Count CV%</td>
<td>1.34</td>
<td>1.6</td>
</tr>
<tr>
<td>TPM</td>
<td>800</td>
<td>810</td>
</tr>
<tr>
<td>TPM CV%</td>
<td>3.6</td>
<td>3.2</td>
</tr>
<tr>
<td>RKM</td>
<td>16.2</td>
<td>17.0</td>
</tr>
<tr>
<td>Tensile CV%</td>
<td>7.2</td>
<td>8.0</td>
</tr>
<tr>
<td>U%</td>
<td>11.5</td>
<td>12.0</td>
</tr>
<tr>
<td>Imperfections</td>
<td>356</td>
<td>400</td>
</tr>
</tbody>
</table>

PTO
Q.6. a. Explain the term Line of Regression and Correlation Coefficient.  
   b. What is the meaning when a formula of a line is given as \( y = mx + c \)?

Q.7. a. How do you fix norms for productivity considering variations you are getting in day to day working?  
   b. What is the difference between mean deviation and standard deviation?

Q.8. a. How do you decide whether a lot is to be passed or rejected when the readings are on border line?  
   b. What is a Histogram? What is the difference between a Histogram and a Normal Curve?