THE TEXTILE ASSOCIATION (INDIA)
GMATA (Revised) Examination - 2017
Section – C, Paper – C4
Applied Statistics
Marks – 100

Date 26 Dec 2017 Marks: 100 Time 10.00 am to 1.00 pm

Instructions:
1. Answer any six questions out of which Question No 1 is compulsory.
2. Answer each next main question on a new page.
3. Figure to the right indicate full marks.
4. Illustrate your answers with sketches and flow chart wherever necessary.
5. Use of non-programmable electronic pocket calculator permitted.
6. Mobile and any other communication devices are not allowed in examination hall.
7. Assume suitable data wherever necessary.

Q1  Write Short Notes on any five of the following
   a. Test of hypothesis
   b. Concepts and importance of statistics in process control.
   c. Poisson distribution. Give examples in a textile mill
   d. Coefficient of variation.
   e. Population and Sample.
   f. Preventable and unpreventable variations.
   g. Normal Curve and its properties

Q2  a. Define statistical variation. Explain its importance in process monitoring.
    b. How frequency distribution is used in finding variation?

Q3  a. Explain the relation between sample and population.
    b. Explain the relation of control limits to the tolerance given by customer.

Q4  a. How a control chart is designed using the theory of normal distribution?
    b. What is CV%? For which type of distributions CV% can be calculated?

Q5  a. Explain the term test of significance.
    b. The test reports of two bags of cotton yarn are as follows. Whether they are identical or different?

<table>
<thead>
<tr>
<th></th>
<th>Bag - 1</th>
<th>Bag - 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count Ne</td>
<td>30.25</td>
<td>29.75</td>
</tr>
<tr>
<td>Number of cones tested</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Count CV%</td>
<td>1.2</td>
<td>1.9</td>
</tr>
<tr>
<td>TPM</td>
<td>880</td>
<td>860</td>
</tr>
<tr>
<td>TPM CV%</td>
<td>5.8</td>
<td>3.5</td>
</tr>
<tr>
<td>RKM</td>
<td>15.5</td>
<td>15.0</td>
</tr>
<tr>
<td>Tensile CV%</td>
<td>8.0</td>
<td>8.5</td>
</tr>
<tr>
<td>U%</td>
<td>9.8</td>
<td>10.5</td>
</tr>
<tr>
<td>Imperfections</td>
<td>650</td>
<td>500</td>
</tr>
</tbody>
</table>
Q6  
a. What are the normal statistical tools used in process control in weaving?  
b. Why the loom efficiency is found lower in a wide width loom?  

Q7  
a. What is the difference between Sample Mean, Population Mean and Arithmetic Mean of all sample tests?  
b. What is expected value of a random variable? Explain with an example.  

Q8  
a. How do you fix norms for quality considering variations you are getting in day to day working?  
b. What is the difference between percent mean deviation and standard deviation?