THE TEXTILE ASSOCIATION (INDIA)
A.T.A. (REVISED) EXAMINATION – 2015
PART-I PAPER-A-1.2
GENERAL ENGINEERING

Date: 25.12.2015          Marks: 100          Time: 10.00 am to 1.00pm

Instructions:
1. Attempt SIX questions out of which Q1 is compulsory
2. Answer each next question on 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 permissible
6. Mobile and any other communication devices are not allowed in exam hall.
7. Assume suitable data wherever necessary

Q1
a) Fill in the blanks with the options given in the brackets(N, speed, diode, electricity, CFC, velocity, lever, direction, pressure)
   i. N/m² is the SI unit of ____________
   ii. __________ gives mechanical advantage.
   iii. Ozone layer depletion is caused because of ____________.
   iv. Sweeping a conductor across a magnetic field produces ____________.
   v. ____________ is used in rectification.

b) Match the column

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Gear</td>
<td>a. Brushless</td>
</tr>
<tr>
<td>ii. Mic/Speaker</td>
<td>b. Speed ratio</td>
</tr>
<tr>
<td>iii. Solar panel</td>
<td>c. Material handling</td>
</tr>
<tr>
<td>iv. Mctor</td>
<td>d. Transducer</td>
</tr>
<tr>
<td>v. Crane/Forklift</td>
<td>e. Renewable Energy</td>
</tr>
</tbody>
</table>

c) State True or False and give the true statement in case of false statements

i. The rate of change of momentum is acceleration.
ii. Wind Energy is a constant source of energy.
iii. A transformer produces change in voltage.
iv. Acid rain is caused by NO₂.
v. A CNC machine runs by voice command.

d) State the units and dimensions of the following in and SI units (L M T)


Q2
Write 4 points on: (each question carries 4 marks each)

i. Chain drives  ii. Air pollution  iii. Types of diodes  iv. Cranes
Q3 Explain: (write 4 points in your answers)
   i. Write 6 points on uses of gears
   ii. Explain pollution.
   iii. Explain electricity generation
   iv. How is sound pollution caused?

Q4 Answer the following (write 6 points in your answers)
   i. What are material handling equipments?
   ii. How do sensors work?
   iii. Sketch a lever and state the mechanical advantage attained.
   iv. Explain AC current.

Q5 Answer the following (write 6 points in your answers)
   i. How does the food chain function?
   ii. Calculate the force exerted if the mass of the object is \( m = 10 \) kg and acceleration is \( 3.5 \) m/s\(^2\).
   iii. Calculate the resistance in the circuit: \( I = 15 \) A, \( V = 150 \) Volts.
   iv. What happens when humidity is very high?

Q6 Explain in brief the following (write 6 points in your answers)
   i. List the type of sensor used in Textile industry.
   ii. What is mechanical advantage?
   iii. How can we reduce reuse and recycle?
   iv. Explain use of steam in industry.

Q7 Answer the following (write 6 points in your answers)
   i. Explain ecosystem
   ii. What are the means of producing renewable energy?
   iii. List down used of pulleys.
   iv. How is electricity generated using nuclear fuels?

Q8 Write about the following: (write 6 points in your answers)
   i. Explain why lubricants are used in machines?
   ii. Wind and solar energy
   iii. Global warming.
   iv. Devices using belt drive.