THE TEXTILE ASSOCIATION (INDIA)
ATA Part III Examination 2019
Paper A3-1
ELEMENTS OF TECHNICAL TEXTILES

Date: 21.12.2019   Marks – 100   Time 10.00 am to 1.00 pm

Instructions:
1. Answer any six questions out of which Question No1 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.

Q.1.a “Technical Textiles are known for the function they perform”, in light of this statement, Define Technical Textiles. Classify the technical textiles based on their functionality.

b Match the following sets in column A with Column B

<table>
<thead>
<tr>
<th>S. No</th>
<th>Column A</th>
<th>S. No</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Bandages, apron, face mask</td>
<td>a</td>
<td>Geo tech</td>
</tr>
<tr>
<td>ii</td>
<td>Interlining, embroidery, backing</td>
<td>b</td>
<td>Hometech</td>
</tr>
<tr>
<td>iii</td>
<td>Parachute, cutresistant gloves, fire resistant suit</td>
<td>c</td>
<td>Indutech</td>
</tr>
<tr>
<td>iv</td>
<td>Erosion control mat, road surfacing fabric</td>
<td>d</td>
<td>Agrotech</td>
</tr>
<tr>
<td>v</td>
<td>Hood liner, boot liner, interior mats</td>
<td>e</td>
<td>Mobiletech</td>
</tr>
<tr>
<td>vi</td>
<td>Filters, brake pads, composite mats</td>
<td>f</td>
<td>Clothtech</td>
</tr>
<tr>
<td>vii</td>
<td>Crop covers, mulch mats</td>
<td>g</td>
<td>Protech</td>
</tr>
<tr>
<td>viii</td>
<td>Wipes, upholstery backing, carpet</td>
<td>h</td>
<td>Meditech</td>
</tr>
</tbody>
</table>

Q.2. a Define nonwoven fabrics. How are nonwoven fabrics different from woven fabrics?

b Write the flow chart for manufacture of a needle punched fabric. Describe with diagram the needle punching machine

Q.3.a Classify the following into various segments of technical textiles. Justify your answer.

   d. Parachute

b What are composites? What is the role of textiles in making of composites? Explain the different types of textile structures that can be used in making Composites

Q.4 a Define geotextiles. List the different fibres used for geotextile applications. Discuss the suitability for use of the following fibres as geotextiles:

a) Jute   b) Polypropylene
b Geotextiles help to improve the service life of roads. Justify with examples. 08
Q.5 Write a short note on Any Two
   i) Filtration textile ii) Coated and laminated textiles iii) Textiles in
   conveyor belts. 16
Q.6 a Define medical textiles. Classify them based on their application 08
   b Explain the different types of fibres that are used in the area of medical
   textiles. 08
Q.7 a Explain various types of Protective textiles based on their functional
   requirements 08
   b What are flame retardant textiles? Explain the importance of flame
   retardant materials.
   Briefly describe the different techniques of making flame retardant textiles. 08
Q.8 a Explain in detail the properties of textile materials used in Home textiles. 08
   b What is chaffer fabric? How is it used in the tyre cord industry? 08

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