THE TEXTILE ASSOCIATION (INDIA)  
G.M.T.A. (REVISED) EXAMINATION – 2015  
SECTION – D PAPER (Optional)  

Non-Woven Technology  

Date: 29.12.2015 Marks: 100 Time: 2 pm to 5 pm  

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  

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Q1 Choose the appropriate answer from the multiple choices in the following  

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<th>Marks</th>
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a. Which of the follows barbs shows the highest fibre carrying capacity  
   i. NK Barb ii. K Barb iii. E Barb iv. All of above  

b. Which of the following statements is true?  
   i. Cone up nozzle has higher break-up length than cone down nozzle.  
   ii. Cone down nozzle has higher break-up length than cone up nozzle.  
   iii. Cone up nozzle has higher break-up length than cylindrical nozzle.  
   iv. Cone up nozzle has same break-up length as cylindrical nozzle.  

c. Which of the following modes of heat transfer takes place during thermal calendar bonding process?  
   i. Conduction ii. Convection iii. Radiation iv. None of the above  

d. Which of the following modes of heat transfer takes place during through-air thermal bonding process?  
   i. Conduction ii. Convection iii. Radiation iv. None of the above  

e. Which of the following systems provides control of both longitudinal and transverse feed uniformity?  
   i. Weighing pan system ii. Roller weighing system iii. Scan feed system  
   iv. None of them  

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f. Which of the following characteristics is directly related to the pore diameter of a nonwoven material?
   i. Fibre density  
   ii. Fibre packing density  
   iii. Number of layers  
   iv. All of them

2

g. Which of the following bonding methods is generally following in spunbond process?
   i. Needle punching  
   ii. Thermal calendar bonding  
   iii. Chemical bonding  
   iv. Hydro entanglement

2

h. Which of the following process sequences is correct for melt blown process?
   i. preparation, extrusion, quenching, attenuation, lay-down, winding.
   ii. preparation, extrusion, drawing, attenuation, lay-down, winding.
   iii. preparation, extrusion, quenching, lay-down, attenuation, winding.
   iv. preparation, quenching, extrusion, attenuation, lay-down, winding

2

i. The relation between pore size and porosity?
   i. Directly Proportional  
   ii. Inversely proportional
   iii. No Relation
   iv. None of above

2

j. Which technology would you prefer to use for obtaining isotropic fibre orientation distribution?
   i. carding  
   ii. air-lay  
   iii. Perpendicular-lay process  
   iv. None of above

2

Q2  
a) Nonwovens – how are they created?

8

b) What are the web bonding processes? Describe any two in detail

8

Q3  
Explain about the following

a) Describe mechanical finishing of non woven fabric in detail.

8

b) What is melt blown technology? Describe in detail.

8

Q4  
Explain about the following

a) Chemical bonding process

8

b) Name the three types of web stacking process. Which of them is mostly preferred for continuous production of multilayered webs where each layer consists of different types of fibres?

8

Q5  
What are the factors influencing the needling? Discuss briefly.

16

Q6  
a) What are the categories of the civil engineering in which Geo-textiles is being used and describe briefly any two categories.

8

b) Briefly describe the definition, classification of industrial textiles.

8

Q7  
a) By how many ways the bonding agent content can be determined?

8
b) What are the factors govern the selection of fibres for the production of non woven bonded fabric? Describe the properties of cotton required for the

Q8  a) Briefly explains the use of technical textiles in medical field.
b) Briefly describe the sequence of machineries used in production of parallel laid, cross laid and random laid web.

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