B. Tech TT 363: Industrial Textiles
Major Test

MM: 35 Dated: 1.12.2006

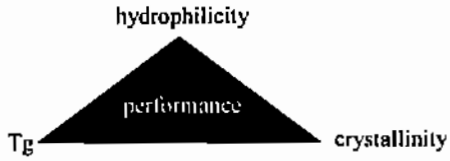
PART A

Q.1. Discuss two methods of polyester fictionalization so that chitosan can be bonded to the modified fabric. Write the structure of the resultant material. 4

Q.2. a. How is nanosilver activity different than other antimicrobial agents? 2
b. Write following in the increasing trend of antimicrobial activity: Cu, Ag, Zn. CO, Ni, Fe 1
c. Suggest a binding site for the above metals. 1

Q.3. a. How would you design a porous wound dressing? 2
b. What do you mean by predrying time? Discuss its impact on the dressing performance. 2

Q.4. a. Dexon suture undergoes chain scission to low molecular weight components- How would you ascertain it? 2
b. Discuss the meaning of the following sketch with respect to biodegradable suture. 2



Q.5. a. What physico-chemical changes take place when steam is used during RF plasma treatment of polyester surface? 2
b. Plasma treated fabric surfaces are unstable in nature- Justify. 2

Q.6. a. What happens during graphitization process of carbon fiber preparation? 2
b. How can you develop acrylic fibre with three different functional groups? 2

Q.7. Answer following in short.
a. What is the difference between medical textiles and biotextiles? 1
b. What are the requirements and functions of a scaffold? 1
c. What is the function of Neutrophils? 1
d. Anion exchange membrane 1

PART B

1. Given a 100-lb./inch^2 truck tire inflation pressure on a stone base course consisting of 2 in. maximum size stone with a geotextile beneath it, calculate (a) the required grab tensile stress on the geotextile, and (b) the global factor of safety for a geotextile whose ultimate grab strength at 33% is 125 lb. with a sum of partial factors of safety of 2.5. 3

2. Provide the typical tensile stress-strain curves for geogrid, woven and nonwoven geotextiles with reasons for the differences if there are any. 2

3. In liquid filtration with filter fabrics, where the particle concentration is low, say, lower than 10%, what type of modification would you consider doing to improve the particle capture? 2