Roll No. ..... Total No. of Pages : 2

BT-6/JX 8821

Theory of Yarn Structure

Paper : TT-302

Time : Three Hours] [Maximum Marks : 100

Note :– Attempt any **FIVE** questions, selecting at least **ONE** question from each Section.

SECTION—I

1. (a) How can you measure yarn diameter ? What problems are associated with each method ?

   (b) Derive an equation for yarn diameter in terms of yarn tex and other necessary parameter.

   (c) Calculate yarn diameter for a worsted yarn of $30N_m$ if it is spun with a metric twist factor of 110. 6+6+8

2. Define Packing Coefficient. How can it be measured ? Discuss different ways of Idealized packing of fibres in a spun yarn.

SECTION—II

3. What do you mean by Ideal Fibre Migration ? Discuss Tension & Geometric Mechanisms of Fibre Migration with neat and clean diagrams. 5+15

4. Define various parameters used to characterize Fibre Migration both in Unitary as well as Blended yarn. 20

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SECTION—III

5. Discuss the tensile behaviour of continuous filament yarn when it is subjected to a strain of more than 30%. 20

6. What do you mean by Catastrophic break ? Discuss the mechanisms of yarn breakage with suitable diagram. 20

SECTION—IV

7. (a) Define Schwarz's Constant. What is its significance ?

   (b) If S_1 and S_2 are the tenacities in g/tex of 100% cotton and 100% polyester yarn respectively, describe the tensile behaviour of 50 : 50 (Polyester/Cotton) spun yarn. 5+15

8. How spinnability of textile fibres is related to end breakage rate ? Discuss in the light of different spinning systems. 20

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