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

BT-6/M09 9852

Theory of Fabric Structure

Paper : TT-304

Time : Three Hours] [Maximum Marks : 100

Note :– Attempt **FIVE** questions in total with at least ONE question from each unit.

UNIT–I

1. (a) Describe the Ashenhurst, Armitage and Law's cloth setting theories with suitable examples. Also state their assumptions. 12

   (b) Define fractional cover, cover factor and Fabric cover with suitable example. 8

2. (a) Describe Brierley's cloth setting theories for balanced as well as unbalanced fabrics. 8

   (b) Define fabric cover with example. 4

   (c) Derive an equation relating cloth weight and cover factor. 5

   (d) Define average float. 3

UNIT–II

3. (a) If a fabric has e.p.i. X p.p.i. of 60 × 40, warp and weft count of 49^s Ne and 36^s Ne and warp and weft crimp of 9% and 12% respectively. Find epi, ppi, warp and weft crimp after the fabric is stretched maximum in weft direction. 12

   (b) Derive a relation between crimp height, thread spacing and crimp of a fabric. 8

4. (a) With a clean diagram explain Pierce's flexible thread model. 10

   (b) Explain Kemp's Race Track Model and derive the equations of the model. 10

UNIT–III

5. (a) Explain Pierce rigid thread model with suitable diagram. 12

   (b) If a fabric has epi X ppi of 45 × 55, warp and weft weave angles of 60° and 45°, then find the ratio of bending rigidity of the constituent warp and weft thread. 8

6. (a) Derive crimp balance equation with proper explanation. 12

   (b) If a fabric has epi × ppi of 40 × 50, warp and weft count of 20 Tex and 30 Tex, find warp crimp when weft crimp is 14%. 8

UNIT–IV

7. (a) Derive an equation to predict tensile modulas of a fabric when thread spacing and crimp are known. 14

   (b) Discuss different parameters which affect bending behaviour of a fabric. 6

8. (a) Prove that tensile load perpendicular to shear direction during shear test cannot completely remove buckling tendency of a fabric. 12

   (b) Discuss different fabric parameters which affects compressional property of a fabric. 8