

Roll No.

Total Pages : 2

BT-6/M-13

8686

THEORY OF FABRIC STRUCTURE

Paper : TT-304

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT-I

1. (a) Discuss the Ashenhurst, Armitage and Brierley's Cloth setting theories with suitable practical examples. What are their assumptions? 15
- (b) Derive the expression for fabric weight. 5
2. (a) What are the elements of fabric geometry? What are the purposes of analyzing fabric geometry? 8
- (b) Define Fractional cover, Cover factor and Fabric cover with suitable example. 8
- (c) Define Average float. 4

UNIT-II

3. (a) Derive the following equations :

$$h_1 = p_2(2c_1)^{1/2} \text{ and } h_2 = p_1(2c_2)^{1/2}$$
 10
- (b) Explain Kemp's Race track model, and derive the equations of the model. 10
4. (a) What do you mean by Jammed structure? State the different equations of pierce in jammed structure. 12
- (b) Derive the jammed structure equation in terms of Cover factor and Yarn balance. 8

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UNIT-III

5. What was the assumption of Pierce rigid thread model? Explain pierce rigid thread model with suitable diagram. Discuss the application of rigid thread model.
6. (a) Derive Crimp balance equation with proper explanation.
- (b) If a fabric has 45 epi and 55 ppi, warp and weft count of 20 Tex and 30 Tex, find warp crimp when weft crimp is 15%.

UNIT-IV

7. (a) Highlight the reason for basic inaccuracy of Munden's model for the geometry of plain knitted fabric. 5
- (b) Discuss Nutting and Leaf's model for the geometry of plain knitted fabric. 10
- (c) Discuss the effect of friction on the geometry of the plain loop. 5
8. (a) Derive an equation to predict tensile modulus of a fabric when thread spacing and crimp are known. 14
- (b) Discuss different parameters which affect bending behaviour of a fabric. 6

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