

Unit II

Roll No.

Total Pages : 03

BT-6/M-14

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THEORY OF FABRIC STRUCTURE

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's cloth setting theories with suitable practical examples. What are their assumptions ? 14
- (b) Discuss Brierley's cloth setting theory. 6
2. (a) What are fractional covers and cover factors ? Derive the expressions for them. 10
- (b) Derive an equation relating cloth weight and cover factor. 5
- (c) What are the purposes of analyzing fabric geometry ? What are the elements of fabric geometry ? 5

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P.T.O.

3. (a) What were the assumptions of Pierce's Flexible Thread model ? 5
- (b) Derive the equations $P_2 = (l_1 - D\theta_1) \cos\theta_1 + D\sin\theta_1$ and $P_1 = (l_2 - D\theta_2) \cos\theta_2 + D\sin\theta_2$. 12
- (c) What are the other equations pierce derive in his Flexible threads model ? 3
4. (a) What do you mean by jammed structure ? State the different equations of pierce in jammed structure. 8
- (b) Derive the jammed structure equation in terms of cover factor and yarn balance. 12

Unit III

5. (a) Derive crimp balance equation with proper explanation. 10
- (b) If a fabric has 55 epi and 65 ppi, warp and weft count of 25 tex and 40 tex, find warp crimp when weft crimp is 10%. 10
6. (a) Explain pierce rigid thread model with suitable explanation. 15
- (b) What do you mean by relaxed condition of cloth ? Explain the graphical method for calculation of balance fabric geometry and crimp interchange. 5

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Unit IV

7. (a) Discuss Munden's model for the geometry of plain knitted fabric and highlight the reasons for basic inaccuracy of the model. 15
- (b) Discuss different parameters which affect bending behaviour of a fabric ? 5
8. (a) Discuss the effect of friction on the geometry of the Plain Loop. 5
- (b) Prove that tensile load perpendicular to shear direction during shear test cannot completely remove buckling tendency of a fabric. 15