21819

3 Hours / 70 Marks   Seat No.

Instructions :   (1)   All Questions are *compulsory.*

(2)   Answer each next main Question on a new page.

(3)   Illustrate your answers with neat sketches wherever necessary.

(4)   Figures to the right indicate full marks.

(5)   Assume suitable data, if necessary.

(6)   Use of Non-programmable Electronic Pocket Calculator is permissible.

(7)   Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **Attempt any FIVE :**   **10**

(a)   Define "metric count". Give formula for the same.

(b)   A cotton yarn of 2.44 gm weight, has 60 lb lea strength. Calculate CSP of the yarn.

(c)   Calculate percentage weight loss of a cotton fabric of 1.5 gm which because 1.42 gm after 200 cycles on abrasion tester.

(d)   Differentiate between waterproof and water repellent fabric.

(e)   Explain in brief the concept of elastic recovery with the help of an example.

(f)   Define tenacity. Explain with the help of an example.

(g)   Explain the concept of T.I.V.

2. **Attempt any THREE :** 12

    (a) (i) A cone of 40^s combed yarn weighs 2 kg. Calculate the length of yarn it contains.

         (ii) A polyester filament yarn package of 150 Denier weighs 1.5 kg. Find the length of yarn it contains.

    (b) Explain fabric sampling methods with relevant sketchs.

    (c) Describe the method of measurement of wear by Martindale's Abrasion tester.

    (d) Describe the procedure for measurement of water repellency with spray test with a neat sketch and ratings.

3. **Attempt any THREE :** 12

    (a) Describe procedure to find of CSP of yarn. State the importance of CSP.

    (b) List down various dimensional properties of fabric. State importance of their measurement.

    (c) State the purpose of measurement of T.I.V. of fabric. State its application.

    (d) List down various factors responsible for pilling.

4. **Attempt any THREE :** 12

    (a) Explain the importance of assessment of cover factor. Calculate cover factor of a fabric having following particulars :

         (i)   Ends / inch = 72

         (ii) Pick / inch = 60

         (iii) Warp count = $2/40^s$ Cotton

         (iv) Weft count = 120 Den Polyester

    (b)   Describe with sketch method to ascertain air permeability of fabric.

    (c)   State importance of twist in Spun as well as filament yarn. State the effect of amount of twist on strength of spun as well as filament yarn with the help of graph.

    (d)   State and define the expressions used to denote unevenness in yarn. State their significance. State the effect of unevenness on properties of yarn and fabric.

    (e)   State the procedure for measurement of pilling by ICI pillbox tester.

5.   **Attempt any TWO :**   **12**

    (a)   A cone weighing 2.4 kg. has yarn of 1,80,000 metres.

         Calculate :

         (i)   Denier

         (ii)   Tex

         (iii)   Cotton count Ne.

    (b)   With the help of a neat sketch explain the determination of tensile strength of a fabric.

    (c)   Describe the method of measurement of crease recovery angle of a fabric.

6.   **Attempt any TWO :**   **12**

    (a)   Calculate GSM of a fabric from following data :

         (i)   Ends/inch = 92

         (ii)   Picks/inch = 72

         (iii)   Warp count = 40 cotton

         (iv)   Weft count = 76 Den Polyester

         (v)   Warp crimp = 4%

         (vi)   Weft crimp = 5%

    (b)   Calculate Bending modulus of cotton denim fabric with following data :

         Fabric oveshanging length = 4.4 cm

         Fabric Weight = 90 mg per sq cm

         Fabric thickness = 0.05 cm

    (c)   Justify why we need to test bursting strength. Describe the procedure to measure bursting strength of fabric with a neat sketch.

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