11819

3 Hours / 100 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 TEN :**   **20**

(a) Define British count and give an expression (formula) for the same.

(b) Define worsted count and give an expression for the same.

(c) A cone of 150 Denier polyester filament yarn weighs 1.5 kg, find out the length of yarn it contains.

(d) Find out the resultant yarn count of two fold yarns of having count 12^s and 18^s.

(e) Define U%.

(f) Define P.M.D. and C.V.

(g) Draw diagrams of 'S' twisted and 'Z' twisted yarn.

(h) Define T.P.I. and T.P.M.

(i) State the concept of addition of irregularity.

(j) Define the 'yarn hairiness'.

(k) Enlist any 4 reasons for yarn hairiness.

(l) Define tenacity.

(m) State the concept of initial Young's modulus.

(n) Define "Work of rupture".

(o) What do you mean by elastic recovery ?

2. **Attempt any FOUR :** 16

(a) (i) Define 'Yorkshire Woollen count and give one example.

(ii) Convert 30^s English count into its equivalent Denier count.

(b) Derive relation between twist and twist multiplier.

(c) State causes of unevenness of yarn.

(d) Elaborate the concept of yarn unevenness.

(e) State the causes and effects of yarn hairiness.

(f) Draw load elongation curve of cotton yarn and describe the concepts of initial Young's modulus, work of rupture and work factor.

3. **Attempt any FOUR :** 16

(a) Describe the method of determination of yarn count by wrap reel method.

(b) Describe effect of twist on fabric properties.

(c) Elaborate the method of determination of unevenness by cut and weight method.

(d) Describe the method of yarn hairiness measurement by microscopic method.

(e) List down factors affecting tensile properties of textiles.

(f) Elaborate the concept of Constant Rate of Extension principle. (CRE)

4. **Attempt any FOUR :** 16

   (a) Describe the method of determination of yarn count in fabric form.

   (b) Calculate the diameter of 36^s cotton yarn in inches.

   (c) Describe the method determination of twist by straightened fibre method.

   (d) Describe visual examination method to determine yarn unevenness.

   (e) Explain the method of determination of yarn hairiness by photo-electric method.

   (f) Describe the working of stelometer.

5. **Attempt any FOUR :** 16

   (a) (i) Define metric count and give an expression for the same.

       (ii) A $2/30^s$ worsted yarn cone weighs 1.5 kg, find out the length of yarn it contains.

   (b) Describe the method of determination of twist by twist contraction method.

   (c) Describe the effect of irregularity of yarn.

   (d) Describe the method determination of twist in double yarn.

   (e) Elaborate strain gauge principle of tensile strength testing.

   (f) Describe working of single thread strength tester.

6. **Attempt any TWO :** 16

    (a)   (i)   Define Tex, Denier and give relation between the same.

           (ii)   Classify variation in wf/unit length of yarn into different categories and explain the same.

    (b)   Describe the working of Electronic capacitance tester with the help of a neat diagram.

    (c)   Describe the working of lea strength tester with help of a neat diagram.

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