22369

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3 Hours / 70 Marks Seat No.

15 minutes extra for each hour

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 <u>FIVE</u> of the following.** **10**

a) Define English count and give an expression for the same.

b) Draw diagrams of 'S' twisted and 'Z' twisted yarns.

c) Classify yarn variations. Explain with help of diagram.

d) Explain the importance of twist multiplier in spinning.

e) Define the term tenacity. State its unit.

f) Define crimp regidity.

g) Define crimp contraction.

Marks

2. **Attempt any <u>THREE</u> of the following.** **12**

   a) Describe the procedure for determination of count of yarn in Package form.

   b) Elaborate the relationship between yarn twist and yarn strength for both spun and filament yarn with the help of graphs.

   c) List down various causes of yarn unevenness.

   d) Explain the term Limit irregularity, Index of irregularity, addition of irregularity and reduction in irregularity with an example of each.

3. **Attempt any <u>THREE</u> of the following.** **12**

   a) Derive relation between yarn count and yarn diameter.

   b) Explain the test procedure to determine yarn unevenners by cutting and weighing method.

   c) Explain the test procedure to measure yarn unevenness by visual examination (ASTM).

   d) Elaborate various causes of yarn Hairiness.

   e) Describe the method to measure dimensional stability of polyster filament yarn by hot air and hot water principle.

4. **Attempt any <u>THREE</u> of the following.** **12**

   a) Describe effect of yarn hairiness on yarn and fabric properties.

   b) Draw load elongation curve for cotton yarn and elaborate the terms load, elongation, stress, strain, initial Young's modulus, work of rupture.

   c) Explain various factors affecting tensile properties of textile materials.

   d) Explain the principle of pendulum lever yarn strength tester with help of a diagram.

   e) Describe the working of ballastic strength tester with the help of a neat labelled diagram.

Marks

5. **Attempt any TWO of the following.** 12

   a) (i) Calculate denier and tex if, 100 meters of polyester filament yarn weighs 2 gm.

      (ii) A cone of 40^s NC carded yarn weights 2 kg. Find out the length of yarn it contains in meter.

      (iii) 12^s and 24^s cotton yarns are doubled. Find out the count of double yarn. If 96 pounds of double yarns is required, find out the weights of componant single yarns (i.e. 12^s and 24^s yarns).

   b) Describe the test procedure to determine twist in single yarn by twist contraction method.

   c) Describe measurement of yarn uneveness by capacitance principle with the help of a neat labelled diagram.

6. **Attempt any TWO of the following.** 12

   a) Describe procedure for determination of yarn hairiness by photoelectric method.

   b) State importance of C.S.P. Elaborate test procedure for determination of C.S.P. of a yarn.

   c) Elaborate various salient features of Tensorapid and Tensojet.

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