17346

15116

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.

Marks

1. Solve any FIVE : **5 × 4 = 20**

(a) What is yarn numbering system ? Explain different types of yarn numbering system with example.

(b) Write merits and demerits of direct yarn numbering system.

(c) What is the amount of twist in the material ? How it is expressed ? Write only formula for twist multiplyer (T.M) and Twist Factor (T.F.).

(d) What is function of twist in Yarn Structure ?

(e) Explain random variation in evenness testing. Give relation between C.V.% and P.M.D. (Percentage Mean deviation).

(f) Describe cutting and weighing method of yarn unevenness testing.

(g) What is capacitance principle ?

2. Solve any FOUR : **4 × 4 = 16**

(a) Calculate metric cotton count, and french cotton count of 60,000 yards weighing in 1.2 pounds.

(b) Define and also write formula for Denier, Tex, English cotton count, Yorkshire count, Worsted count. (any four)

P.T.O.

(c) Write steps to measure count of yarn if yarn is in fabric form.

(d) Derive the relationship between twist and yarn count.

(T.P.I = T.M. $\sqrt{\text{count code}}$)

(e) List methods of measuring twist in single and double yarn with principle.

(f) Define Twist. Explain different twist direction with neat sketch.

3. Solve any TWO : 8 × 2 = 16

(a) Describe Visual Examination (ASTM) method of unevenness measurement in detail.

(b) Describe yarn count measurement in package form by wrap reel and weight measurement method.

(c) Describe measurement of twist in double yarn with neat sketch by take-up twist tester.

4. Solve any FOUR : 4 × 4 = 16

(a) State relation between yarn count and yarn diameter with assumptions made to derive the same.

(b) Define periodic variation. Give classification of periodic variation, also state at which stage of process these variations occur/or produced.

(c) Define the terms : Limit irregularity, Index of irregularity, and Reduction in irregularity.

(d) Describe any one method of measurement of Yarn Hairiness.

(e) Define Yarn Hairiness. Draw figure of end & loop's in Yarn Hairiness.

(f) Draw neat sketch of Ballistic or impact strength tester.

5. Solve any FOUR : 4 × 4 = 16

(a) List causes and effects of Yarn Hairiness.

(b) How to convert load-elongation curve to stress-strain curve ?

(c) Define-Breaking Length, Tenacity, Initial Young's modulus, mass stress and breaking load. (any four).

(d) Describe the effect of time & extension on recovery properties i.e. instaneous effect and time dependent effects.

(e) Describe pendulum lever principle.

(f) What are draw backs of lea strength and also advantages of lea strength over single thread strength ?

6. Solve any TWO : **8 × 2 = 16**

(a) What are causes and effect's of unevenness ? Describe in short.

(b) Describe lea strength tester with figure. What is unit for C.S.P. ? Also write formula for corrected C.S.P.

(c) What are the factor's affecting tensile properties of textiles ?

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