22369

11920

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 of the following : **10**

(a) Define : Tex and Denier.

A polyester filament yarn of 100 meters weighs 2 gm, calculate its Denier and Tex.

(b) Compare the level of twist in following 2 yarns.

(i) yarn A $\rightarrow$ tpi = 24, count = 36^S Ne

(ii) yarn B $\rightarrow$ tpi = 18, count = 16^S Ne

(c) Explain the term CV% of yarn count.

(d) Define U%, imperfections and random variations.

(e) Describe the term crimp. State its significance.

(f) A 120 yard lea of cotton yarn weighing 2.315 gm has a breaking load of 86 pounds. Find out its CSP.

(g) Explain the term tenacity with the help of an example.

2. Attempt any THREE of the following : **12**

(a) Define :

(i) British count

(ii) Metric count

(iii) Worsted count

(iv) Woolen count

Give an expression for each of them.

(b) Explain the effect of twist on strength of spun yarn and filament yarn with the help of a graph.

(c) Explain various causes of hairyness in the yarn.

(d) Explain the following terms :

(i) Stress-strain curve

(ii) Initial Young's modulus

(iii) Work of rupture

(iv) Work factor

3. Attempt any THREE of the following : **12**

(a) (i) A cone of 36^S worsted yarn weighs 7.5 kg. Find out the yarn it contains.

(ii) A 120 yards lea weighs 2.7 gm. Calculate its English count.

(b) Describe the method of determination of single yarn by straightened yarn method.

(c) Explain the terms 'Index of irregularity', 'Addition of irregularity' and 'Reduction of irregularity' .

(d) Describe the method of determination of yarn hairyness by microscopic method.

4. Attempt any THREE of the following : **12**

(a) Explain the method to measure twist in double yarn.

(b) Describe the method to determine yarn hairyness by photoelectric method.

(c) Draw neat sketch of Instron tester.

(d) Explain method to determine dimensional stability of synthetic yarn in hot air.

(e) Explain the principle and procedure to determine tensile strength of yarn by CRT principle.

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

(a) Derive relation between yarn count and yarn diameter. Calculate the diameters of following yarns.

(i) 36^S cotton yarn

(ii) 150 Denier polyester

(b) Describe in detail the method of measurement of yarn unevenness by the method of capacitance principle.

(c) Explain the procedure for measurement of lea strength of yarn. Describe method to determine CSP. State significance of CSP.

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

(a) (i) Describe the effect of yarn irregularity on further processing and fabric quality.

(ii) Describe the importance of spectrogram.

(b) Explain various features of advance strength testing equipment – TENSOJET.

(c) Describe with sketches measurement procedure of crimp rigidity and crimp contraction of textured filament yarn.

———————