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03 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) List the types of sampling methods.

b) Define moisture regain and write its formula.

c) Define uniformity ratio.

d) Draw comb sorter diagram and show effective length and short fiber length.

e) Draw cross-section of mature and immature cotton fiber.

f) List the measurement methods of cotton fiber maturity.

g) Define Neps. List down different types of neps.

Marks

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

a) Explain the factors governing to sampling.

b) Use oven-dry method to determine moisture content and moisture regain in textile material.

c) Describe air-flow principle to measure fiber fineness.

d) Explain the technical significance of cotton fiber maturity.

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

a) Explain identification of the cotton fiber using microscopic, burning, and solubility test.

b) i) List the methods of measuring relative humidity R.H.%.

ii) State the factors affecting fiber moisture regain.

c) Explain use of oil plate method to measure fiber length.

d) List the cotton grades according to Indian and American grading systems.

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

a) Explain the technical significance of the fiber length.

b) Elaborate the terminologies –

i) Breaking load

ii) Stress

iii) Strain

iv) Tenacity

c) Use causticaire method to determine fiber maturity.

d) Explain the template method to measure the neps.

e) Determine the trash content in cotton using trash analyzer.

Marks

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

a) Explain the cut-square method to take the fiber samples from roving.

b) Explain the sample preparation and the procedure to measure single fiber strength.

c) Use cut and weight method to determine fiber fineness.

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

a) i) Describe with neat sketch the working principle of Digital fibrograph.

ii) Interpret the fibrograph to analyze 2.5% span length, 50% span length, short fiber percentage.

b) Explain the sample preparation and the procedure to measure boundle fiber strength.

c) State the effect of relative humidity (R.H%) on fiber properties and textile processing.

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