

22247

22232

3 Hours / 70 Marks

Seat No.

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- 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 the term Random Sample.
- (b) Define Relative Humidity.
- (c) State the concept of Uniformity Index.
- (d) Calculate Uniformity ratio of MECH cotton having 24 mm of 50% span length and 32 mm of 2.5% span length.
- (e) Define the term Denier with its Numerical expression.
- (f) Draw microscopic view for Wool Fibre.
- (g) Sketch microscopic view diagram for Mature, Half Mature and Immature cotton fibre.



- 2. Attempt any THREE of the following :** **12**
- (a) Summarize objectives of Textile Testing.
  - (b) State the significance of fibre fineness on yarn property and yarn manufacturing process.
  - (c) Describe the technical significance of fibre maturity in yarn manufacturing process.
  - (d) Calculate moisture regain and moisture content of cotton fibre sample of 250 grams heated in hot air oven for 105 °C for 20 min and 10% moisture loss is observed.
- 3. Attempt any THREE of the following :** **12**
- (a) Describe the procedure for measurement of cotton fibre length by oil plate method.
  - (b) A bunch of cotton fibre is tested for fineness by cut-weight method and weight of bunch is noted 2.4 mg on torsion balance, containing 1450 fibres of 10 mm. Calculate fibre fineness in terms of micronair and denier.
  - (c) Describe the procedure for measurement of cotton fibre maturity using caustic soda method.
  - (d) Explain the effect of moisture regain on various fibre properties.
- 4. Attempt any THREE of the following :** **12**
- (a) Define the term mean length and 2.5% span length.
  - (b) Explain Indian cotton grading with sketch.
  - (c) Describe the procedure for measuring fibre fineness with gravimetric method.
  - (d) Explain factors responsible for neps generation in cotton fibre processing.
  - (e) Explain the process to determine the fibre maturity by causticaire method.

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

- (a) A cotton fibre is tested for maturity with caustic soda method and following observations are obtained :

Mature fibres = 365, Half mature fibres = 148 and Immature fibres = 50

Using this calculate percentage of Mature, Half Mature, Immature Fibre, Maturity Co-efficient and Maturity Ratio.

- (b) Describe the procedure to measure fibre fineness by air flow principle with neat sketch.
- (c) Explain the working principle of Digital Fibro-graph with neat sketch.

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

- (a) A cotton sample of 150 grams were tested on trash analyzer, shows 6 grams of trash in it. Then it is processed through modern blowroom line having 60% cleaning efficiency. Calculate trash content in cotton material delivered at blowroom.
- (b) Describe the measurement procedure of fibre length on Bare Sorter instrument with graph analysis.
- (c) Suggest the fibre sampling method for raw cotton in bulk with procedure and neat sketch.
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