

17226

21718

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.
  - (4) Assume suitable data, if necessary.
  - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. Attempt any TEN of the following :

20

- (a) Define Random sample.
- (b) Name fibres that dissolves in 59.5% of  $H_2SO_4$ .
- (c) List the fibre sampling techniques.
- (d) Define "Relative humidity".
- (e) Write moisture regain values of following fibres :
  - (i) Cotton
  - (ii) Wool
- (f) Define "2.5% span length".
- (g) Enlist the fibre length measurement methods.
- (h) State the formula to determine uniformity index.
- (i) Draw a cross-section sketch of mature, immature & half mature cotton fibre.
- (j) Define "Micronaire".
- (k) Enlist the methods of determination of fibre maturity.
- (l) Define Neps.
- (m) State any four causes of Neps.
- (n) Classify the trash based on their source.

**2. Attempt any FOUR of following :****16**

- (a) State the necessity of sampling.
- (b) State the importance of fibre length in yarn.
- (c) State the factors affecting maturity of cotton.
- (d) Describe the method to find fibre length by oil plate technique.
- (e) Convert 60<sup>s</sup> dtex fineness of fibre into its equivalent denier and micronaire value.
- (f) Explain the Indian & American cotton grading system.

**3. Attempt any FOUR of the following :****16**

- (a) List the factors that governing a sampling method & explain each in details.
- (b) State the effect of fibre regain on fibre properties.
- (c) Explain the air-flow principle to determine fibre fineness.
- (d) State the effect of fibre maturity on processing of fibre.
- (e) Explain the causticaire method to determine fibre maturity.
- (f) Describe a procedure to find nep count by Shirley template method.

**4. Attempt any FOUR of the following :****16**

- (a) Describe Zoning technique in detail with diagrammatic representation.
- (b) Convert 60% moisture regain to its equivalent moisture content.
- (c) State the importance of fibre fineness.
- (d) Describe the method to find fibre maturity by differential dyeing technique.
- (e) Explain the procedure to calculate various fibre length from digital fibrograph.
- (f) State the procedure to determine trash content using Shirley trash analyser tree diagram.

**5. Attempt any TWO of the following : 16**

- (a) State the method to identify cotton fibre by microscopic and chemical testing.
- (b) Explain the method of determination of fibre fineness by Gravimetric method.
- (c) Describe construction & working of AFIS with neat sketch.

**6. Attempt any TWO of the following : 16**

- (a)
    - (i) Explain construction & working of comb-sorter instrument.
    - (ii) State the method to find effective length by comb-sorter diagram.
  - (b) Describe the general principle of operation of fibrograph.
  - (c) Explain the method to find maturity ratio, percentage mature fibre and maturity coefficient by caustic soda technique.
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