Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.TECH/APM(N)/SEM-3/APM-301/2012-13

2012

BASICS OF MECHANICAL PROCESSING OF TEXTILES

Time Allotted : 3 Hours *Full Marks :* 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

   i) Which of the following statement is true

      a) Cotton fibre is mainly used in sewing thread industries

      b) Linen fibre cannot be used for blended apparel preparation

      c) Polyester fibre has limited use in garment sector

      d) Silk fibre is preferably applied for sophisticated garment making.

   ii) Which one of the following is considered as best quality of cotton fibre regarding fineness

      a) American Pima Cotton

      b) Egyptian Cotton

      c) Indian Cotton

      d) BT Cotton.

iii) In short staple spinning, twist insertion is started during preparation of

a) Carded web b) Roving

c) Drawing silver d) Yarn.

iv) Single yarn tenacity can be expressed in

a) newton/cm b) tex/cm

c) cN/tex d) newton/sec.

v) Finishing of Sewing thread affecting the property of garment mostly is

a) serviceability b) wearability

c) sewability d) all of these.

vi) The maximum value of drape coefficient of stiff fabric is

a) 0 b) 100

c) 1 d) 0·1.

vii) The speed Ratio between crank Shaft and Bottom Shaft is

a) 1 : 2 b) 2 : 1

c) 1 : 1 d) 1 : 3.

viii) Drafting Plan is the combination of

a) Ends and picks

b) Ends and healds

c) Picks and healds.

ix) Elmendorf tearing tester stored potential energy of the pendulum is used of tear the fabric

a) True

b) False.

x) Choose the incorrect Option

a) Gauge Length = Test Length

b) GSM = Areal Density

c) Drape Coefficient measure the Stiffness property of the Fabric

d) Total crease angle = 90°.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Write down dimensional and mechanical properties of textile fibres used primarily in making of apparels and garments. Establish a relationship between fibre properties and garment properties with a help of a flow diagram. 2 + 3

3. Plying techniques may be applied during preparation of sewing threads, but plied yarn specification is somewhat different form sewing thread specification _ mention the differences with suitable examples. Is there any relation between yarn numbering system and sewing thread numbering system ? 3 + 2

4. Explain different sewing thread defects that are affecting the garment performances ?

5. Define Air permeability and Sectional permeability. 5

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

6. a) Draw a tree diagram showing various category of manufactured fibres with examples originated from natural resources and chemical resources used as building blocks in apparel industries. Identify any four fibres, two from each resources and compare their physical and chemical properties as well as application areas. Which one of these is preferred mostly in making of apparels meant for comfort properties ?

   b) Write down the properties of micro-fibres with suitable example. 12 + 3

7. a) What are the important preparatory processes of yarn formation in short staple spinning industries ? Explain the preparatory process sequences as well as their function combed cotton yarn production. 2 + 5

   b) Name different machines for production of final yarn in short staple industries ? Which one is suitable for sewing thread preparation ? Illustrate the principle of operation of the machine and characteristics of yarn made from it. 2 + 1 + 5

8. a) Discuss different sewing thread properties essentially required for smooth production of apparels.

   b) Discuss different testing instruments for measuring the dimensional properties fibres and yarns. 8 + 7

9. a) Trace out the path of warp yarn through the loom. 5

   b) What the different Primary motion of loom ? 3

   c) What is the purpose of eccentricity movement of the sley in the loom. 2

   d) What are the Factors controlling the Eccentricity of Loom. 5

10. Draw the repeat drafting and lifting plan on any *three* of the following design : 3 × 5

    a) 3/3, 2/2 irregular basket of one repeat

    b) 2/2 8 ends-8 picks diamond weave

    c) Crepe weave for staircase design with 8 harness and counter 5

    d) 6 harness 10 ends-10 picks honeycomb weave

    e) 5 harness sateen counter 2.