

M. Des. Examination, 2016
Specialized in Textiles
Semester-I
Paper - MTD-I/03
(Textile Technology)

Time: 3 Hours

Full Marks: 80

Questions are of equal value as indicated in the margin.

Question no. 1 is compulsory and answer **any three** questions from the rest.

Group A (Marks 40)

1. Choose the correct answers from the given alternatives(**any ten**) **10 × 1 = 10**
- I. Which is finer
- a. $40^S N_e$ b. 40 tex c. 40 denier d. $100^S N_e$
- II. Singeing of cotton fabrics results in
- a. Improved strength
- b. Decreased crease recovery
- c. Increased bending rigidity
- d. Improved performance during printing
- III. The most lustrous fabric woven with the same sett from the same yarns would result from
- a. 1/1 plain weave
- b. 2/2 matt weave
- c. 3/1 twill weave
- d. 5-end satin weave
- IV. Among the following, the lightest fibre is
- a. Cotton b. Polyester c. Nylon d. Polypropylene
- V. Match the following
- | | |
|-------------|---------------|
| a. Jacquard | i. Stock port |
| b. Combing | ii. Knitting |
| c. Reed | iii. Weaving |
| d. Loop | iv. Hosiery |
- VI. Match the following
- | | |
|-------------------|------------|
| a. Varigated Matt | i. Twill |
| b. Diamond | ii. Satin |
| c. Sateen | iii. Plain |
- VII. Match the following
- | | |
|--------------------|-----------|
| a. Warp tension | Reed |
| b. Warp protection | Lingoes |
| c. Fabric width | Back rest |

P.T.O.

(2)

VIII. Match the following

- | | |
|--------------|-------------|
| a. Polyester | Texturizing |
| b. Silk | DFE |
| c. Wool | Degumming |

IX. Match the following

- | | |
|--------------|------------------|
| a. Gabardine | i. Towel |
| b. Leno | ii. Mosquito net |
| c. Honeycomb | iii. Suiting |

X. Match the following

- | | |
|-----------------|-------------|
| a. Tenacity | i. unitless |
| b. Cover factor | ii. cc/g |
| c. Sp. Volume | iii. g/tex |

XI. What will be the e.p.i using $3/40^S$ Stockport reed ?

- a. 40 b. 20 c. 60 d. 120

XII. 18^S Bradford will be equivalent to

- a. 18^S Stockport b. 20^S Stockport c. 40^S Stockport

2. A. What are the essential properties that a fibre should have to be used in textiles?
B. Classify textile fibres with example. 5 + 5 = 10
3. A. How the kidney shape of cotton fibre can influence in processing and also in the properties of cotton fabrics- Explain.
B. What are the considerations taken into account in respect of types of fibre, fabric construction and colour for designing a kid's wear with your justification? 4 + 6 = 10
4. Wool and Silk both are natural Protein fibre, yet there are differences in their properties"- Justify the statement. 10
5. Give your idea of exploiting different yarn characteristics like twist, count, shrinkage to Create design fabrics for apparels. 10
6. A. What are factors affecting comfort properties of textiles and how they influence?
B. What are the advantages of Beesley Yarn Balance? 5 + 5 = 10
7. Write short notes on (**any two**)
a. Tenacity b. Breaking length c. Initial Modulus
8. A. What are the advantages of Tex system of yarn count?
B. Prove that $N_e \times N_t = 590.6$ 4 + 6 = 10

(3)

Group – B (Marks 40)

Answer any four questions:

1. (a) What do you mean by simple structures and compound structures of fabric? Give at least two examples of each category.
(b) Write down names of four different derivatives of twill weave?
(c) What is the tex equivalent of a $2/40^s$ Ne cotton yarn?
(d) Write down at least one commercial name each of a plain and a twill woven fabric.
(e) How many twill weaves are possible if repeat size, $R = 4$? Explain.
 $2+2+2+1+1+2 = 10$
2. (a) Write down the detailed classification of double fabrics?
(b) Write down the end-uses of the following category of weaves:
(i) Double fabric, (ii) Extra-warp figuring, (iii) Perforated weave, (iv) Crepe weave.
(c) "Warp faced Satin weave is woven face downward" — explain why. $3+4+3 = 10$
3. (a) Show on the graph paper weaving plan of any three (3) of the following weaves:
(i) One-end closed double cloth
(ii) a suitable sponge weave.
(iii) 7-end Satin weave
(iv) Devon Huck-a-back
(b) Which type of draft is used in practice for any kind fabric having double warp systems?
 $3 \times 3+1 = 10$
4. (a) Calculate production of a loom in metres per shift of 8 hrs, if the loom runs at 150 p.p.m. and 95% efficiency. The woven fabric contains 28 p.p.cm.
(b) Calculate GSM (g/sq. m) of the fabric having the following particulars:
Warp & weft count — 30 tex & 20 tex respectively,
EPI & PPI — 50 & 70 respectively, and
Warp & weft crimp — 5% & 7% respectively
(c) What do you mean by 'Sley eccentricity ratio'? What is its significance over the motion of the loom?
 $4+4+2 = 10$
5. (a) Write down the detailed classification of power looms.
(b) Why auxiliary motions are needed in power looms? Write names of four different auxiliary motions.
(c) What is the function of temple motion? Is it found in handloom industry?
 $4+1+2+2+1 = 10$
6. (a) What are the primary difference between a tappet and a cam?
(b) What do you mean by 'negative' and 'positive' tappet shedding?
(c) What do you mean by direct and indirect take-up? For silk weaving, which type of cloth take-up arrangement is adopted and why?
(d) What are the different shafts in a plain power loom? Which loom shafts are the appropriate driving sources of three primary motions of a power loom? Explain.
 $1+2+1+2+1+3 = 10$