Guwahati - 5

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/GADAG/VENKATAGIRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

ANNUAL/SEMESTER EXAMINATION-April/May-2018

(Regulation-2014)

Year / Semester: 5TH Semester **Time: 3 Hours**

Subject Code & Name: 5.4 PRINCIPLES OF TEXTILE TESTING-I **Max.Marks:80**

PART-A

Answer all the questions within two to three sentences. (2x10) = 20 Marks

1) What are the objectives of Textile Testing?
2) How do you locate mode value?
3) Define moisture regain.
4) Name any two instruments used for recording RH %.
5) Define tex count of the yarn.
6) Convert 60 Ne into Denier count.
7) Explain twist of yarn.
8) Write the formula for calculating TPI by using Twist Factor.
9) How do you express yarn evenness?
10) Name any two different methods of assessing yarn evenness.

PART-B

(Answer all the questions in detail) (4+8) x 5 = 60 marks

11-A) The test results for the English count of yarn are as follows.

21, 18, 20, 19, 22

Calculate mean and median of the above observations.

B) Calculate the standard deviation and CV% of the following test results.

12, 24, 36, 22, 65, 68, 39, 75, 80, 48

OR

C) Explain random sampling and biased sampling.

D) What is the role of textile testing? How the textile testing can control the process during the production of textile materials?

12-A) Write standard testing atmosphere of textile testing lab in India.

B) Explain Wet and Dry Bulb Hygrometer with its neat diagram.

OR

C) Write moisture regain of the following fibres.

Acrylic, Nylon, Wool, Cotton, Polyester, Silk, Viscose rayon

D) Explain the effect of moisture on fibre/yarn properties.

13-A) Name any two Direct Reading Yarn Count Balances.

B) Explain Indirect, Direct and Universal System of yarn numbering.

OR

C) Write the method of determination of yarn count by using Wrap Reel and Weighing Balance?

D) Explain the determination of yarn count by using Beesley's Balance.

14-A) Explain the relation between twist & strength of yarn.

B) Derive twist factor for indirect systems of yarn numbering.

OR

C) **Explain various functions of twist in yarn structure.**

D) Explain Straightened Fibre Method of twist measurement.

15-A) Explain different methods for measuring the yarn irregularity.

B) State the working of Electronic Capacitance Tester with diagram.

OR

C) **Explain Cutting and Weighing method for measurement of evenness of yarn.**

D) Explain Uster - Classimate System with respect to yarn faults.

Guwahati - 3

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/GADAG/VENKATAGIRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

ANNUAL/SEMESTER EXAMINATION-April/May-2018

(Regulation-2011)

Year / Semester: 5TH Semester **Time: 3 Hours**

Subject Code & Name: 5.4 PRINCIPLES OF TEXTILE TESTING-I **Max.Marks:80**

PART-A

Answer all the questions within two to three sentences. (2x10) = 20 Marks

1) What is mode value?
2) Define Relative Humidity.
3) Define English count of the yarn.
4) Explain twist of yarn.
5) Define Breaking Length of yarn.
6) What is the principle of Pendulum Lever Lea Strength Tester?
7) What is the sample size for Strip Test Method of Tensile Strength Testing of Fabrics?
8) How do you express the crease recovery of fabric?
9) Define crimp of yarn?
10) What is ISO?

PART-B

(4+8) x 5 = 60 Marks

(Answer all the questions in detail)

11-A) The test results for the English count of yarn are as follows.

21, 18, 20, 19, 22

Calculate mean and median of the above observations.

B) Explain Wet and Dry Bulb Hygometer with a neat diagram.

OR

C) Explain random sampling and biased sampling.

D) Calculate the standard deviation and CV % of the following test results.

12, 24, 36, 22, 65, 68, 39, 75, 80, 48

12-A) State the working principle of Electronic Capacitance Tester for yarn evenness.

B) Write the steps involved in the determination of count of yarn using Wrap Reel and Weighing Balance.

OR

C) Explain S & Z directions of twist in the yarn with diagrams?

D) Explain the count testing of yarn from small swatches of fabric.

13-A) Explain CSP.

B) Explain Pendulum Lever Principal with a neat diagram.

OR

C) Explain the mechanism of CRL, CRE and CRT principles of Tensile Strength Testers.

D) Explain the determination lea strength of yarn.

14-A) Explain bending length.

B) Explain the Tearing Strength of fabric by using Elmendorf Tearing Strength Tester.

OR

C) Explain stiffness, handle & drape.

D) Write the working of Drape Meter with diagram.

15-A) Differentiate quality control and quality assurance.

B) Explain the determination of crimp by using Shirley Crimp Tester.

OR

C) Define TQM.

D) Discuss the importance of Total Quality Management (TQM) in Textile production.

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BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNNUR/KHTI GADAG/SPKM VENKATAGIRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

SEMESTER EXAMINATION - NOV/DEC-2017

(2014 REGULATION)

Semester: V Semester **Time: 3 Hours**

Subject Code & Name: 5.4 PRINCIPLES OF TEXTILE TESTING - I **Max.marks:80**

PART-A

(2 X 10 =20 Marks)

(Answer all the questions within two to three sentences)

1. What is a sample?
2. What is range? Give an example.
3. Define moisture regain?
4. What is hygrometer?
5. Convert 80 denier (metric) to New English Cotton System.
6. What are the counts systems clubbed in count testing by using Beesley's balance?
7. What is the formula for calculating TPI in indirect system of yarn numbering?
8. What is crepe yarn?
9. What is the expansion of ASTM?
10. Name any three methods of measuring yarn evenness?

PART-B

(4+8) X 5 =60 Marks

11. A) Define standard deviation with formula. (4)

B) Calculate mean, standard deviation and CV% of the following test values:

40,43,41,40,42,42,38,44,39,40. (8)

(Or)

C) What is random sampling? (4)

D) What are the objectives of textiles testing? (8)

12. A) Define moisture regain and moisture content with formula. (4)

B) Explain the determination of moisture regain by oven dry method. (8)

(Or)

C) Define Relative humidity and Standard Testing Atmosphere with formula. (4)

D) Explain the effect of moisture regain on fibre properties. (8)

13. A) Define Indirect and Direct systems of yarn numbering with example. (4)

B) Explain the determination of count of silk yarn in Denier (Metric) system by using warp reel and weighing balance. (8)

(Or)

C) Why the template of Beesley's balance is designed so? Explain. (4)

D) Explain the determination of count testing from small swatches of fabric. (8)

14. A) Explain directions & types of twist in single and folded yarn. (4)

B) Derive Twist Factor (TF) for indirect systems of yarn numbering. (8)

(Or)

C) What is the relation between twist and yarn strength? (4)

D) Explain the determination of TPI for a single yarn. (8)

15. A) How to express the yarn irregularity? (4)

B) Explain the method of visual assessment of yarn evenness. (8)

(Or)

C) What does U% indicate? (4)

D) Explain the principle of working of Electronic capacitor yarn evenness tester and testing produce. (8)

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BARGARH/GUWAHATI/FULIA/JODHPUR/SALEM/VARANASI/CHAMPA/KANNNUR/KHTI GADAG/SPKM VENKATAGIRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

SEMESTER EXAMINATION - NOV/DEC-2017

(2014 REGULATION)

Semester: V Semester **Time: 3 Hours**

Subject Code & Name: 5.4 PRINCIPLES OF TEXTILE TESTING - I **Max.marks:80**

PART-A (2 X 10 =20 Marks)

(Answer all the questions within two to three sentences)

1. What is a sample?
2. What is range? Give an example.
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4. What is hygrometer?
5. Convert 80 denier (metric) to New English Cotton System.
6. What are the counts systems clubbed in count testing by using Beesley's balance?
7. What is the formula for calculating TPI in indirect system of yarn numbering?
8. What is crepe yarn?
9. What is the expansion of ASTM?
10. Name any three methods of measuring yarn evenness?

PART-B (4+8) X 5 =60 Marks

11. A) Define standard deviation with formula. (4)

    B) Calculate mean, standard deviation and CV% of the following test values:

    40,43,41,40,42,42,38,44,39,40. (8)

    (Or)

    C) What is random sampling? (4)

    D) What are the objectives of textiles testing? (8)

12. A) Define moisture regain and moisture content with formula. (4)

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

BARGARH/GUWAHATI/JODHPUR/SALEM/SHANTIPUR/VARANASI/CHAMPA/KANNUR/KHTI GADAG/SPKMIIHT VENKATAGIRI

DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY

V SEMESTER (REGULAR & BACK PAPER) EXAMINATION – NOV./DEC. 2015

5.4 PRINCIPLES OF TEXTILE TESTING

TIME: 3 Hours **Max. Marks: 80**

PART A

I. Answer all the questions in ONE or TWO sentences. (2 x 10=20)

i. How 'standard error differs' from 'standard deviation'?

ii. Cotton, silk, polyester, jute, wool & polynosic rayon – arrange them in descending order in respect of their standard regain values.

iii. A 60^s cotton yarn is partially wet. Will it appear to be of 50^s or 70^s on determining its count?

iv. For which of these balances a cotton yarn lea of 120 yards is used as sample - Beesley's, Knowles or Quardrant balances?

v. The dials of tensile strength testing machines based on pendulum lever principle are unevenly spaced – Why?

vi. Differentiate between 'breaking load' and ' breaking length' with reference to tensile properties of textiles.

vii. Is 'singeing' regarded as a measure of control pilling tendency in yarn?

viii. Two specific examples where 'brusting strength test' is useful.

ix. Give two main reasons of fabric shrinkage.

x. TQM and its need.

PART B

Answer all the questions in detail

II. a. What are the factors governing sampling? (04)

b. Describe the steps involved in determination of standard deviation of a data. (08)

OR

c. Differentiate between 'absolute humidity' & 'relative humidity'. (04)

d. Describe functioning of wet and dry bulb hygrometer. (08)

III. a. How to determine yarn count using wrap reel and balance?. (04)

b. Explain the function of twist in yarn structure. (08)

OR

c. What is straightened fibre method of measuring yarn twist?. (04)

d. Justify the need of yarn evenness in process and product quality. (08)

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IV. a. What are the various factors influencing yarn strength? (04)
b. Describe the working principle of 'inclined plane tester' for strength. (08)

OR

c. Analyse a typical stress & stain curve drawn during its tensile strength test. (04)
d. Explain lea strength test and its difference with single yarn strength test. (08)

V. a. How is bursting strength test done? (04)
b. how is abrasion resistance regarded as a factor in serviceability of a fabric? (08)

OR

c. What are important causes of pilling? (04)
d. Describe working of drape meter with its usefulness. (08)

VI. a. Describe crimp of yarn in fabric. (04)
b. Explain measurement of crimp percentage using Shirley Crimp tester. (08)

OR

c. Describe the concept of Quality assurance system in textile sector. (04)
d. Give the details of fabric shrinkage and its measurement. (08)

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

PARGARH/PEDDA/GUWAHATI/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHELGAON/SPKMIHT/VENKATAGIRI

DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY
FIFTH SEMESTER (OLD – BACK PAPER) – APRIL/MAY-2016

5.4 PRINCIPLES OF TEXTILE TESTING (OLD – BACK PAPER)

Time: 3 Hrs Max Marks: 80

PART-A

I **Answer all the questions within 2 to 3 sentences:** **2X10=20**

a) Differentiate between absolute humidity and relative humidity.
b) How moisture regain differs from moisture content?
c) Define twist direction.
d) Mention the need of conditioning of test sample before evenness with USTER tester.
e) Does moisture affects tensile strength of textile material?
f) Mention the principle on which 'Inclined plane tester' work.
g) Difference between the samples of grab test and strip test.
h) Mention the unit in which crease recovery test is recorded.
i) Name the instrument for testing crimp of yarn.
j) Mention two most important reasons of fabric shrinkage.

PART-B

Answer all the questions in detail:

II a) What are the various measurements of central tendency in statistical studies? 4
b) Describe the sampling of cotton fabric for determining its crease recovery.

OR

c) Describe the working of wet and dry bulb hygrometer. 4
d) Explain the working of 'Shirley Moisture Meter'. 8

III a) How to determine yarn count using Knowle's Balance? 8
b) What is twist multiplier? 4

OR

c) How is unevenness classified? 4
d) Describe working of electronic capacitance based evenness tester. 8

IV a) What are CRL, CRE & CRT mechanisms of strength testing machines? 4
b) Describe the terms 'work of rupture' and 'elongation at break'. 8

OR

c) What do you understand with CSP and corrected CSP values? 4
d) Describe the working of a 'Lea Strength Tester' with sketch. 8

V a) What are the causes of fabric pilling? 8
b) How is pilling assessed using Pilling Box? 4

OR

c) How to find out abrasion properties of a fabric using Martindale abrasion tester? 8
d) What do you understand with Drape of a fabric? 4

VI a) Give crimp and its effect on fabric properties. 4
b) How is crimp percentage measured using a suitable instrument? 8

OR

c) How is fabric shrinkage measured? Explain with necessary sketches. 8
d) Mention Quality assurance system in textiles. 4

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

FIFTH SEMESTER (BACK PAPER- 2011 REGULATION) EXAMINATION –NOV/DEC-2016

5.4 PRINCIPLES OF TEXTILE TESTING

Time: 3 Hours **Max.Marks: 80**

PART – A

I Answer all the questions within two to three sentences. **(2X10=20)**

i) What are random & biased samples?
ii) Mention the moisture regain values of wool, silk, polyester & viscose.
iii) Define twist factor.
iv) Differentiate between 'S' and 'Z' twists.
v) Does moisture affects yarn strength?
vi) What is the work of rupture?
vii) Name the instrument and unit in which crease recovery property is measured.
viii) What is 'bending modulus'?
ix) Use of measuring fabric shrinkage.
x) How crimp and fabric properties are associated?

PART B

II. Answer all the questions in detail **(4+8) x 5 = 60**

A) Give important objects of textile testing. (4)
B) Describe the working of wet and dry bulb hygrometer. (8)

(OR)

C) Define mean and standard deviation of statistical data. (4)
D) Explain the process of determining moisture regain using conditioning oven. (8)

III. A) Classify yarn irregularities. (4)
B) Explain the process of count determination using Knowles balance. (8)

(OR)

C) Give process of yarn sampling for twist test. (4)
D) Describe the working of USTER yarn evenness tester with schematic diagram. (8)

IV. A) What is the principle involved in ballistic strength tester? (4)
B) What are the factors influencing test results of pendulum lever instrument? (8)

(OR)

C) What is CSP and how is it assessed? (4)
D) Describe the process of determining lea strength using a suitable instrument. (8)

V.	A)	Define 'serviceability' of a fabric.	(4)
	B)	Describe the bursting strength tester with its specific usefulness.	(8)
		(OR)	
	C)	c) Differentiate between crease resistance & crease recovery.	(4)
	D)	What are main causes of pilling? How is pilling assessed?	(8)
VI.	A)	Give in brief the reasons of fabric shrinkage.	(4)
	B)	What do you understand with 'quality assurance' & TQM ?	(8)
		(OR)	
	C)	How to measure shrinkage in fabrics?	(4)
	D)	Describe the process of measuring crimp using a suitable instrument.	(8)

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BARGARH/FULIA/GUWAHATI/JODHPUR/SALEM/VARANASI/CHAMPA/KANNUR/KHTI,GADAG/SPM IIHT, VENKATAGIRI

DIPLOMA IN HANDLOOM & TEXTILE TECHNOLOGY

FIFTH SEMESTER (2014 REGULATION) EXAMINATION NOV/DEC - 2016

5.4 – PRINCIPLES OF TEXTILE TESTING-I

Time : 3 Hours | Max.Marks:80

PART-A

Answer all the questions within two or three sentences:

I i) State the importance of testing of a textile material.
ii) Write the formula for coefficient of variation.
iii) Define the term relative humidity.
iv) What is corrected invoice weight of a textile material?
v) Write the conversion factor for Tex to Denier.
vi) Name the instrument used to measure the count of a yarn from small swatches of fabric.
vii) Show the schematic diagram of S and Z twist direction.
viii) Mention the relationship between twist multiplier and count.
ix) State the principles used to detect the unevenness of yarn in modern yarn testing instrument.
x) Name any two terms used to express the yarn irregularity.

Answer all the questions in detail:

II a) Strength of a grey woven fabric is tested in fabric tensile strength tester and results are as follows: 04
(i) 120 (ii) 118 (iii) 124 (iv) 122 (v) 116
Find the mean and range for the above test results.

b) Calculate the coefficient of variation and standard deviation for the following values: 08
13, 35, 56, 35, 77, 68, 65, 46

OR

c) List the various factors to be considered while selection of sample for testing. 04
d) Explain the random and biased method of sample selection. 08

III a) Write the definition of Moisture regain and moisture content. 04
b) Describe the principle of working of wet and dry bulb hygrometer. 08

OR

c) State the factors influencing the regain of a textile material. 04
d) Describe the principle of working of Shirley moisture meter to measure the moisture regain of a fiber. 08

IV a) Explain the two systems of expression of count of yarn. 04
b) Discuss with neat sketch about the wrap reel and weighing balance method to measure the count of yarn. 08

OR

c) List the salient features of a quadrant balance. 04
d) Describe the method of measurement of a yarn count in beesley's balance. 08

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V a) Discuss in detail about the twist and yarn strength characteristics. 04
b) Describe the effect of twist on fabric properties. 08

OR

c) List any four methods of measurement of yarn twist. 04
d) Explain the method of measurement of yarn twist by twist contraction method. 08

VI a) State the importance of yarn evenness on product quality and process performance. 04
b) Discuss the measurement of yarn unevenness by visual examination method. 08

OR

c) Write short notes on capacitance principle of measurement of yarn unevenness. 04
d) Explain Uster® classimate system of yarn fault classification. 08

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DIPLOMA IN HANDLOOM AND TEXTILE TECHNOLOGY

SEMESTER EXAMINATION APRIL/MAY-2017 (2011 REGULATION)

Time : 3 Hours **Max. Marks : 80**

V SEMESTER

5.4 PRINCIPLES OF TEXTILE TESTING

PART - A

(Answer all the questions within two to three sentences) **2 x 10=20 Marks**

1. Define standard deviation.
2. Arrange the following in ascending orders of standard moisture regain:- Cotton, Silk, Nylon, Jute, Polyester, Viscose and Wool
3. 40^s cotton yarn in wet state will appear as 36^s or 44^s. Justify your answer.
4. Show S and Z directions of twist.
5. Why the dials of pendulum lever tensile testing instruments are unevenly spaced?
6. Define the terms; stress and strain.
7. Name and outline a process which is used for controlling pilling tendency in cotton fabrics.
8. Name two varieties of textiles were measurement of "bursting strength" is essential.
9. Outline the process of shrinkage in cotton fabrics.
10. Differentiate between quality control and quality assurance.

PART - B

(4+8) x 5= 60 Marks

11 A) Mention necessary precautions to be observed during sampling for fabric tensile strength. **(4)**

B) Describe with a suitable example the steps involved in determination of CV percentage. **(8)**

(OR)

C) Differentiate between absolute and relative humidity's. **(4)**

D) Explain the impact of moisture regain on mechanical and electrical properties of textiles with **(8)**

12 A) What are the advantages of using Knowles Balance for measurement of count? **(4)**

B) Describe the Process of determining warp and weft count in fabric swatches. **(8)**

(OR)

C) What are the functions of twist in yarn structure? **(4)**

D) Explain measurement of twist using "Straightened Fiber Method". **(8)**

13 A) Define the terms – elastic limits and work of rupture. **(4)**

B) Describe the principle of "IP testers" for tensile measurements. **(8)**

(OR)

C) Describe the analysis of "Load – Elongation Curves" **(4)**

D) Describe the working of "Lea Strength Tester" with suitable diagram. **(8)**

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14	A)	Differentiate between tensile and tearing strengths.	(4)
	B)	What do you mean by serviceability? Explain different types of abrasion	(8)
		(OR)	
	C)	Prepare a list of factors affecting pilling tendency in woolen fabrics.	(4)
	D)	Describe mechanism of crease formation in cotton fabrics along with the process of CRA	(8)
15	A)	Describe the role of yarn crimp in fabric structure.	(4)
	B)	Explain measurement of crimp percentage using Shirley crimp tester.	(8)
		(OR)	
	C)	Define TQM.	(4)
	D)	Write a note on inspection and grading in a Garment export house.	(8)

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