Registration Number [ ][ ][ ][ ][ ][ ]

Year/Semester: First year   Time: 3 Hours

Course Code & Name: **1.2 Applied Mathematics**   Maximum Marks: 80

PART-A   (10x2=20 Marks)

Answer all the questions within two to three sentences

1) Find x if $\begin{vmatrix} 2 & 4 \\ -1 & x \end{vmatrix} = 0$.

2) If A=$\begin{bmatrix} 2 & 3 & -4 \\ -1 & -2 & 5 \end{bmatrix}$ $find\ -2A$.

3) Find the value of $sin40° \cos10° - \cos40° \sin10°$

4) Find the value of $2sin15° \cos15°$

5) Find $\frac{dy}{dx}$ $if\ y = \frac{1}{\sin x}$

6) Find $\frac{dy}{dx}$ $if\ y = 5sinx + 10$

7) Evaluate: $\int sin10x\ dx$

8) Evaluate: $\int sec^2x\ dx$

9) Find the solution of $2x + 3y = 8, 8x - 3y = 2$

10) Find the median of observation 1,3, 3, 6,7,8,9.

PART-B   ((4+8) x5=60 Marks)

Answer all the questions

11) A) If A=$\begin{bmatrix} 3 & -2 \\ 2 & 1 \end{bmatrix}$ B=$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and c=$\begin{bmatrix} 2 & 3 \\ 4 & -1 \end{bmatrix}$ verify that $A(BC) = (AB)C$.   (4)

   B) Find the inverse of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 3 & 1 & 2 \\ 2 & 3 & 1 \end{bmatrix}$ (8)

(OR)

   C) Without expansion, find the value of $\begin{vmatrix} 6 & 3 & 2 \\ 1 & 2 & 4 \\ 3 & 6 & 12 \end{vmatrix}$ (4)

D) Solve the following equations by using CRAMER'S RULE

$$x + y + z = 3, 2x - y + z = 2, 3x + 2y - 2z = 3$$ (8)

12) A) Prove that $\frac{\sin 2A}{1+\cos 2A} = tanA$ (4)

B) If $tanA = \frac{n}{n+1}, tanB = \frac{1}{2n+1}$ prove that $A + B = 45°$ OR $A + B = \frac{\pi}{4}$ (8)

(OR)

C) Prove that $\frac{1-\cos 2A+\sin 2A}{1+\cos 2A+\sin 2A} = tanA.$ (4)

D) If $A + B + C = 180°$, $Verify$ that $sin2A - sin2B + sin2C = 4cosA\ sinB\ cosC$ (8)

13) A) If $y = e^x (\log x + 25),$ then find $\frac{dy}{dx}$ (4)

B)If $y = cosx - \frac{sinx}{x+7}$, then find $\frac{dy}{dx}$ (8)

(OR)

C) Differentiate $y = log(e^x + 2x + 3)$ with respect to x. (4)

D) Differentiate $y = \frac{e^x+\cos x}{1-sinx}$ with respect to x. (8)

14) A) Evaluate $\int x(x-1)^2\ dx$ (4)

B) Evaluate $\int \frac{2x+1}{(x^2+x-5)^2} dx,$ by using substitution method (8)

(OR)

C) Evaluate $\int \frac{sec^2\sqrt{x}}{\sqrt{x}\ tan\sqrt{x}} dx$ (4)

D) Evaluate $\int x\ cosx\ dx,$by using integration by parts method. (8)

15) A) Solve the Equation $7x - 6y = -3, 9x + 5y = 136$ (4)

B) Show that the points (2,-2) (8,4) (5,7)and (-1,1) are the vertices of rectangle. (8)

(OR)

C) Show that the points (1,-1),(5,2) and (9,5) are collinear. (4)

D) Find the mean of the following distributions: (8)

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	1	7	24	36	25	6	1

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri
Diploma in Handloom & Textile Technology
APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester   :   First Year   Time:3 Hours

Course Code &Title   :   **1.6 - Weaving Technology & Textile Calculations - I**   Maximum Marks:80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1. Write the names of four yarn packages used in handloom industry.

2. Write the objectives of sizing in warp yarn.

3. Write the name of two types of handlooms.

4. Name any two types of heald reversing motions used in handloom.

5. Write the objectives of reed in handloom weaving.

6. Write the name of any two auxiliary motions of handloom.

7. Define universal system of yarn numbering.

8. Define Denier (metric) count.

9. Convert 10 Tex in to Denier (metric).

10. Write the conversion formula for Direct to Indirect system of yarn numbering.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Write down the objectives of warping process.   (4)

     B. Write the name of the ingredients used in prepare sizing paste with their functions in detail.   (8)

(OR)

     C. Explain the peg warping process.   (4)

     D. Explain the street warp sizing process practiced at handloom industry.   (8)

12. A. Explain passage of warp in a frame loom with suitable sketch.   (4)

     B. Explain different types of shed formations with suitable sketch.   (8)

C. Explain primary and secondary motions of handloom. (4)

D. Explain any two types of heald reversing motions used in handloom weaving, with the use of diagrams. (8)

13. A. Write the different types of reed used in handloom. (4)

B. Explain rope - lever and dead weight let-off motion with the use of diagram. (8)

(OR)

C. What are the advantages of roller shuttle used in handloom weaving? (4)

D. Explain ratchet and pawl take-up motion with the use of diagram. (8)

14. A. Calculate the weight in grams of 1500 meters of nylon yarn whose count is 100 Denier (metric). (4)

B. The weight of 1500 meters of yarn is 10 grams, what is the count of yarn in the following system? (8)

(1) Ne cotton (2) Tex

(OR)

C. Calculate the weight of 33600 yards of 20^s Ne cotton yarn. (4)

D. Calculate the weight in grams of a bunch of cotton yarn having one hank of 30^s Ne, one hank of 40^s Ne and one hank of 50^s Ne. (8)

15. A. Convert 40^s Ne cotton count in to Nf count. (4)

B. Drive the conversion factor for converting count from Tex system to Denier (metric) system. (8)

(OR)

C. Convert 50 Denier (metric) to Tex count system. (4)

D. Derive the conversion factor for converting Ne to worsted count system. (8)

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Semester : First year   Time:3 Hours

Course Code &Title : **1.7 Fabric Structure-I**   Maximum Marks:80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1 . How many minimum heald frames are required for Plain weave fabric?

2 . Draw an interlacement diagram of one repeat of 2 & 2 Warp rib weave.

3 . Give one example of warp face and weft face twill weave.

4 . What are the two different weaves used in twill dice check?

5 . Name possible moves for constructing regular sateen on 7 threads.

6 . Differentiate between satin and sateen weave (any two).

7 . Write the drafting order of Ordinary Honey Comb on 8 x 8.

8 . Name any two weaves suitable for Towelling fabrics.

9 . What are the two ways to produce crepe effect ?

10 . What is Hond's Tooth pattern effect?

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Construct Plain weave and show thread interlacing diagram (Flat view).   (4)

    B. Explain Catch cord technique used for weaving regular warp rib and explain   (8)
    how its works.

(OR)

    C. What are the different methods of ornamenting a plain weave (any four point).   (4)

    D. Construct Warp rib, Weft rib, Hopsack & Basket weaves.   (8)

12. A. Name any four weaves constructed on twill base.   (4)

    B. Construct Herring bone twill with drafting order by taking 2up 2 down twill   (8)
    as base.

(OR)

C. Differentiate (4-points) wavy twill across the cloth & wavy twill along the cloth. (4)

D. Construct a Warp face twill and Weft face twill weave with drafting order. (8)

13. A. Construct possible sateen weaves on 5 threads. (4)

B. Construct design, draft and peg-plan for Diamond weave using 2up 2 down twill as base. (8)

(OR)

C. Construct a Sateen dice check weave on 10 x 10. (4)

D. Construct design, draft and peg-plan for Diaper weave using 2up 2 down twill as base. (8)

14. A. Construct Ordinary Honey comb on 6 x 6 with drafting order. (4)

B. Construct Huck-a-back on 10 x 10 with drafting order and peg plan. (8)

(OR)

C. Construct Brighton Honey comb on 8 x 8. (4)

D. Construct Mock leno on 10 x 10 with drafting order and denting order. (8)

15. A. Construct one repeat of warp cork screw weave on 5 x 5. (4)

B. Construct crepe weave on 8 x 8 by using any two methods. (8)

(OR)

C. Construct one repeat of weft cork screw weave on 5 x 5. (4)

D. Show color & weave effect with the following weave and coloring order. (8)

Weave = Plain weave

Warp color pattern = 1 light 2 dark 1 light

Weft color pattern = 1 Light 2 dark 1 light

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PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1 . What type of shed is formed by Lattice dobby?

2 . Name any four important fabrics woven by frame loom.

3 . What are the objectives of pirn winding?

4 . Name the device used in handloom to maintain the fabric width.

5 . Mention the essential features of a barrel dobby.

6 . Name a few important auxiliary motions of a plain power loom.

7 . What does mean 3/40^s ST reed?

8 . What is the resultant count of 2/60^s cotton yarn?

9 . Calculate the ends per inch in the reed if denting order is 2 ends per dent and 3 ends per dent alternately and the count of the reed is 40^s ST.

10 . How many wheels (minimum) used in a simple spur gear arrangement?

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Mention the advantages of Lattice dobby over barrel dobby weaving.   (4)

    B. Explain the working principle of anyone handloom dobby with neat diagram.   (8)

(OR)

    C. Write down the main features and suitability of frame loom.   (4)

    D. Prepare a layout for accommodating 25 frame looms in an industrial   (8)
       handloom unit and also explain the minimum facilities required for the same.

12. A. Differentiate early and late shedding.   (4)

    B. Explain the passage of yarn in a barber colman spooler machine with suitable (8)
       diagram.

(OR)

C. Write a brief note on motion of a plain power loom. (4)

D. Explain the working principle of seven wheel take-up motion with a neat sketch. (8)

13. A. Differentiate over pick and under pick mechanism. (4)

B. Explain the working of cone over pick mechanism with suitable diagram. (8)

(OR)

C. Discuss in brief the importance of timing circle in powerloom weaving. (4)

D. Explain the working principle of chain, lever, dead weight let-off motion in plain powerloom with suitable diagram. (8)

14. A. Explain in brief the methods of expressing folded yarn counts. (4)

B. A warp contains yarn of the following particular, (8)
4 ends of 30 Tex yarn.
16 ends of 40 Tex yarn.
Calculate the average count (1 end=1 km)

(OR)

C. Calculate the count of 2 folded yarn if its two component threads counts are 40 Tex and 60 Tex. (4)

D. The resultant count of a 2 folded yarn is 30^s cotton. Count of 1 component thread is 72^s. What is the count of unknown thread? (8)

15. A. Write a brief note on spur gears arrangements. (4)

B. A wheel A of 60 teeth is driven by a wheel B of 40 teeth, on the same stud of B is fixed a wheel C of 80 teeth. The wheel C is driven by a wheel D of 30 teeth, fixed on a shaft making 240 rpm. Find the speed of A. (8)

(OR)

C. A single worm of 400 rpm drives a worm wheel of 50 teeth. Find the speed of the worm wheel. (4)

D. The diameter of a line shaft drum is 19 c.m and its running at 96 rpm. The diameter of the machine pulley is 38 c.m and it is driven by line shaft drum. Now calculate the speed of machine pulley. (8)

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Registration Number ☐☐☐☐☐☐☐

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Semester   :   III   Time:3 Hours

Course Code &Title   :   **3.2 Fabric Structure – II**   Maximum Marks:80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1 .   Mention two effects obtained by the combination of two weaves.

2 .   What are the two different varieties of Distorted Thread effect?

3 .   Mention two weaves which produce cord effect in fabric.

4 .   Mention two purposes of use of wadding threads in welt structure.

5 .   Name the different series of warp in pique structure.

6 .   How many series of warp and weft are required to produce self-stitched double cloth?

7 .   Mention two types of wadded welt.

8 .   What type of cord effect is produced in bed ford cord weave?

9 .   Write the names of any two types of double cloth.

10 .   Mention two uses of tubular cloth.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A.   What is distorted thread effect and classify it.   (4)

     B.   Draw a design of distorted warp thread effect on 18 x 18. Also indicate the draft for it.   (8)

(OR)

     C.   Briefly write about combination of weaves.   (4)

     D.   Indicate a design and draft for the combination of plain and honey comb weaves to create a Stripe effect.   (8)

12. A.   Mention the features of bed ford cord structure.   (4)

     B.   Explain the different stages of making a plain face bed ford cord weave with suitable illustrations.   (8)

C. Define wadded bed ford cord with an illustration.   (4)

D. Indicate design, draft and peg plan of a bed ford cord weave arranged with alternate picks on 16 x 4.   (8)

13. A. Differentiate bed ford cord and welt structure.   (4)

      B. Indicate design, draft and peg plan of a loose back welt structure.   (8)

(OR)

C. Define loose back welt structure and fast back welt structure.   (4)

D. Indicate an ordinary welt structure producing two cords of irregular width. Also indicate draft and peg plan for it.   (8)

14. A. Give the classifications of double cloth.   (4)

      B. Construct self - stitched double cloth weave by using 7- thread satin and sateen for face and back.   (8)

(OR)

C. Construct the design of double width plain cloth with thread interlacing diagram.   (4)

D. Indicate centre warp stitched double cloth with 3 up, 2 down twill for face and 2 up, 3 down twill for back.   (8)

15. A. Define thread interchanging double cloth and cloth interchanging double cloth with relative line diagrams.   (4)

      B. Construct cloth interchanging double cloth to create a stripe effect using 2 up, 2 down twill for both face and back. Also indicate the draft for it.   (8)

(OR)

C. Differentiate warp wadded double cloth and weft wadded double cloth.   (4)

D. Construct design, draft and peg plan of warp wadded double cloth using 2 up, 2 down twill for face and back.   (8)

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Registration Number

Semester : III   Time:3 Hours

Course Code &Title : **3.3 Chemical Processing of Textiles I**   Maximum Marks:80

PART-A   (10×2=20 Marks)

Answer all the questions within two to three sentences

1 . Point out the objectives of singeing process.

2 . Why hydrogen peroxide is called universal bleaching agent?

3 . Illustrate the wet processing flow chart for cotton material.

4 . Record the various types of banned dyes.

5 . Mention the function of electrolyte on reactive dyeing process.

6 . Identify the types of fastness for determination of coloured materials.

7 . Classify the vat dyes.

8 . State the various steps involved for dyeing of cotton with vat dye.

9 . Reveal the general properties of reactive dyes.

10 . What is bi-functional reactive dye.

PART-B   ((4+8)×5=60 Marks)

Answer all the questions in detail

11. A. Draw the morphological structure of cotton fibre.   (4)

    B. Explain in detail about the objectives and various methods of desizing   (8)
       process.

(OR)

    C. Give the various types of dry preparatory process.   (4)

    D. Discuss in detail about the objective and mechanism of scouring and   (8)
       bleaching process on cotton material.

12. A. Brief on wet processing sequence of knitted cotton materials for printing process. (4)

  B. With illustration briefly discuss on working principle on gas singeing process. (8)

(OR)

  C. Define Auxochorme and Chromophore. (4)

  D. Discuss in detail about the various concepts of dyeing process and their importance. (8)

13. A. Identify the properties of sulphur dyes. (4)

  B. Investigate the basic process parameters that influence the dyeing behaviours of textile materials. (8)

(OR)

  C. List the properties of Azoic dyes. (4)

  D. Explain in detail about the mechanism and process condition for dyeing of cotton material with direct dyes. (8)

14. A. Draw the structure of vat dyes. (4)

  B. Explain in detail about the mechanism and process condition for dyeing of cotton material with vat dyes. (8)

(OR)

  C. Brief on vatting process. (4)

  D. Explain in detail about the mechanism and process condition for dyeing of cotton material with solubilised dyes. (8)

15. A. Distinguish between hot brand and cold brand reactive dyes. (4)

  B. Investigate the mechanism of reactive dyes on cotton material and their process conditions. (8)

(OR)

  C. Illustrate the general structure of reactive dyes. (4)

  D. Discuss in detail about the various types of reactive dyes and their application methods. (8)

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Registration Number

Semester   : III   Time:3 Hours

Course Code &Title   : **3.4 Material Science and Engineering Mechanics**   Maximum Marks:80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1 . Define the properties brittleness and ductility of a metal.

2 . What do you understand by the term seasoning of the timber?

3 . What do you mean by concurrent force system?

4 . State the lami's theorem.

5 . What is hook's law?

6 . Define work and power.

7 . Define welding process.

8 . Define metal casting process.

9 . What is power transmission system?

10 . Define mechanical advantage of simple machine.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Which kinds of defects occur in timber? Explain any two defects.   (4)

   B. Classify the ferrous materials on the basis of carbon percentage and briefly   (8)

    explain them.

(OR)

   C. What are lubricants? Explain the properties of lubricants.   (4)

   D. Write the difference between thermosetting and thermoplastic plastics.   (8)

12. A. Define speed, velocity and acceleration.   (4)

   B. Explain Newton's laws of motion   (8)

(OR)

C. Write the all the equations of linear motion. (4)

D. Two forces P = 20 N and Q = 15 N acting on an object at an angle of 45^0. (8)
Find the magnitude and direction of the resultant force.

13. A. Define stress, strain and young modulus of elasticity. (4)

B. Explain stress – strain diagram for ductile material. (8)

(OR)

C. Define kinetic energy and potential energy with example. (4)

D. Prove that mechanical energy of free falling body is constant. (8)

14. A. Write the difference between soldering and brazing. (4)

B. Explain any four operations performed on the lathe machine with diagram. (8)

(OR)

C. Write the short notes on arc welding process. (4)

D. Explain the working of drilling machine with diagram. (8)

15. A. Explain the role of friction in driving system. (4)

B. Explain open-belt drive and cross-belt drive system. (8)

(OR)

C. Define the term mechanical advantage, velocity ratio and efficiency of simple (4)
lifting machines.

D. What are lifting machines? Explain the working simple screw– jack machine (8)
for lifting.

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PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1. What are the scopes of dobby in weaving?

2. Write the principles of warp protector mechanism.

3. Write the uses of multiple box motion in weaving.

4. What are the specialties of automatic power loom?

5. Write the formulae for calculating the efficiency of a warping machine.

6. What do you mean by back beams?

7. Write the formulae for calculating size pick up%?

8. Calculate the number of sections, if the creel capacity is 500 and number of ends are 4000?

9. Estimate the calculated production in hours of a cone winding machine with a actual winding speed of 600 meter per minute with an efficiency of 80 percent?

10. How many picks will be inserted per hour, if the crank shaft of a loom is running at 400 RPM?

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Compare loose reed and fast reed warp protector mechanism.   (4)

     B. Explain the mechanism and working principle of climax dobby with neat sketch.   (8)

(OR)

     C. Draw the diagram of pegged lattices suitable for Right handed & Left handed climax dobby by taking 1 up 3 down twill?   (4)

     D. With the help of a neat sketch explain the working of side weft fork mechanism.   (8)

12. A. Discuss the necessity of Multiple box motion. (4)
    B. Write the working mechanism of warp stop motion with neat sketch. (8)

    (OR)

    C. What are the features required for a automatic shuttle loom. (4)
    D. Prepare a layout plan for loom shed having 25 power loom and also write about the amenities required for the loom shed. (8)

13. A. The calculated rate of warping of a warper was found to be 4000 meter per hour. If the actual production per day of 8 hours is 30000 metres, calculate its efficiency? (4)

    B. A warping unit with 4 warping machine is required to complete the order of 26 back beam with 32,000 meters of warp on each. The calculated warping speed of the machine is 900 metres per minute and the efficiency of the machine is 78%. Calculate the time that would be required to complete the work? (8)

    (OR)

    C. Calculate the 'beam count' of a warpers beam which weighs 316 pounds and has 14000 yards of warp on it. The total number of ends in the warp is 450 and the weight of the empty beam is 46 pounds? (4)

    D. A super speed warper producing a warp with 600 ends is having an average production rate of 760 yards per minute. The length of the warp required on each back beam is 30,400 yards. if the count of the warp yarn is 60^s Ne and the efficiency is 82%, Calculate the following: (8)
       i. The length of warp produced per day of 8 hours?
       ii. The number of beams produced per day of 8 hours?
       iii. The total weight of warp produced per day of 8 hours?
       iv. The weight of warp on each back beam?

14. A. What is the actual production in meter per hour of a slasher sizing machine whose draw roller is 12 inches in diameter and has a speed of 60 rpm. Consider 80% as efficiency (4)

    B. A stripe warp has 80 stripes of 38 ends each, 40 extra pattern ends near selvedge on each side and selvedge ends 20 on each side. Find the number of sections and the number of ends on each sections. The creel capacity is 500 bobbins. (8)

(OR)

C. Calculate the percentage of size put on the sized warp yarn, if 2500 metres of   (4)
it weigh 50 grams. The count of unsized yarn is 16 Tex.

D. A set of 8 beams each containing 34000 yards of warp is to be used for   (8)
producing of weaver's beams on a high speed slasher sizing machine. If the
percentage of elongation of warp during sizing is 0.5% and waste of warp is
60 yards, calculate the number of beams which could be made from the back
beams. The length of sized warp on a weavers beam is 1200 yards.?

15. A. A shuttle less sulzer loom is running at 276 rpm and producing a cloth with 46   (4)
picks per inch. If the efficiency of the loom is 85 percent, calculate the
production in yards of the loom per day of 8 hours?

B. Calculate the number of spindles of a fully automatic pirn winding machine   (8)
that would be required to supply 300 looms with weft, if the quantity of weft
consumed by each loom is 20 pounds per day of 8 hours. The calculated
production per spindle per day of 8 hours is 18 pounds. The efficiency of the
pirn winder is 90%. Ignore waste?

(OR)

C. Calculate the time required in hours to wind 500 Kgs of 10^s cotton yarn on 10   (4)
drums. The calculated production per drum per minute is 850 yards and the
efficiency is 82%?

D. Calculate the average picks per minute with the following loom particulars: (8)

No. of looms of different sizes	Average R.P.M of each size of loom
50 looms of 40 inch reed space	250
60 looms of 42 inch reed space	200
100 looms of 48 inch reed space	150
50 looms of 44 inch reed space	200

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Semester   :   IV

Course Code &Title   :   **4.2 Fabric Structure - III**

Time:3 Hours

Maximum Marks:80

PART-A
(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Mention the series of warp threads used for production of treble cloth.

2. Draw thread interlacement diagram of treble cloth.

3. Name the types of Backed cloth.

4. Define the term 'Reversible Backed cloth'.

5. Mention the purpose of introducing wadding threads in the backed cloth.

6. Mark imitation backed cloth on 9 x 9.

7. Name the special mechanism required to produce terry pile.

8. How many warp beams are required to produce 3 pick terry weave.

9. How many looms are required for producing chenille pile carpet?

10. What is the special effect produced in the corduroy cloth?

PART-B
((4+8)×5=60 Marks)

Answer all the questions in detail

11. A. With suitable diagram, explain treble width plain cloth.   (4)

    B. Construct a repeat of weave of Treble cloth in 12 x 12 using plain weave with self-stitching.   (8)

(OR)

    C. Construct a non-reversible weft backed cloth.   (4)

    D. Construct a warp backed cloth with drafting order.   (8)

12. A. What is wadded cloth and its purpose?   (4)

    B. Construct the design of Warp Wadded Weft backed weave with 16 ends x 16 picks and mark the drafting order.   (8)

(OR)

C. Construct a Imitation weft backed weave on 11 ends x 11 picks. (4)

D. Construct the design of Warp Wadded Weft backed weave with 16 ends x 16 picks and mark the drafting order. (8)

13. A. With suitable design, define the term " non-reversible terry pile". (4)

B. Explain the pile formation technique of 3 pick terry on handloom with suitable attachment. (8)

(OR)

C. Construct the design and interlacement diagram of 6 pick terry pile on both sides. (4)

D. Explain loom arrangement required for production of 3 pick terry on handloom. (8)

14. A. Differentiate between warp pile and weft pile (4 points). (4)

B. Explain with neat sketch production technique of cut pile fabric produced with aid of wire. (8)

(OR)

C. What are the salient features of warp pile fabrics? (4)

D. Explain with neat sketch simultaneously insertion of pick & wire to construct velvet fabric. (8)

15. A. Construct plain back velveteen. (4)

B. Explain Chenille fabric production with suitable diagram. (8)

(OR)

C. Construct a repeat of corduroy weave. (4)

D. Explain the production technique of velveteen fabric with a repeat of weave. (8)

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Registration Number

Semester   :   IV   Time:3 Hours

Course Code & Title   :   **4.3 Chemical Processing of Textiles -II**   Maximum Marks: 80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1. What is the action of strong alkali on wool?

2. Give the names of enzymes used in de-gumming of silk.

3. Why NaOCl is not recommended for bleaching of Wool/Silk.

4. What is the need of Heat Setting of synthetic fibres?

5. Differentiate between 1:1 and 1:2 Metal Complex dyes.

6. Mention the function of G'Salt in dyeing wool with Leveling acid dyes.

7. What is the use of Hydroextractor in wet processing of textiles?

8. Name the machine in which the convection mode of heat transfer is used for drying.

9. Which instrument is used for assessment of Light fastness of dyed materials.

10. Mention the reason for CSV in Jigger dyeing machine.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Mention the chemical composition of raw wool.   (4)

     B. What is the object of de-gumming of Silk? Discuss Soap de-gumming in detail.   (8)

(OR)

     C. Discuss Emulsion scouring of wool.   (4)

     D. What is felting of Wool? Describe milling process of wool by using Dolly machine.   (8)

12. A. Explain the method of bleaching wool with Hydrogen peroxide. (4)

    B. What is the objective of setting of wool? Describe the method of setting (8) woolen fabrics with steam.

<div align="center">(OR)</div>

    C. Explain the method of bleaching Silk with Hydrogen peroxide. (4)

    D. Describe any one method of Scouring and bleaching of Polyester and Nylon. (8)

13. A. Discuss the classification of acid dyes. (4)

    B. Describe the method of dyeing Wool with Acid dyes having very good wash (8) fastness properties along with the function of various chemicals used.

<div align="center">(OR)</div>

    C. Discuss the application of Metal Complex dyes on Silk. (4)

    D. Differentiate between Metal complex dyes and Chrome dyes. Describe any (8) one method of dyeing wool with Chrome dyes.

14. A. Explain the conduction method of drying textiles with a neat diagram. (4)

    B. Discuss the working of Winch dyeing machine with a neat diagram. (8)

<div align="center">(OR)</div>

    C. Draw a labeled diagram of cabinet type hank dyeing machine. (4)

    D. Discuss the working of Jigger dyeing machine with a neat diagram. (8)

15. A. Mention the Advantages and disadvantages of Natural dyes. (4)

    B. Define the term Fastness Property of dyed material. How will you assess (8) Washing Fastness of dyed material?

<div align="center">(OR)</div>

    C. Discuss the criteria for selection of dyes for dyeing/printing. (4)

    D. Mention the common defects and damages observed in wet processing of (8) cotton fabrics.

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Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri
Diploma in Handloom & Textile Technology
APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester : IV   Time:3 Hours

Course Code & Title : **4.4 Ecology & Pollution Control in Textile Industry** Maximum Marks: 80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1 . Define Pollution.

2 . What is Primary pollutant?

3 . Give the sources of air pollution in textile mills.

4 . Name any two gases that cause acid rain.

5 . Name the processes in textile industry which produces alkaline waste water

6 . What are coagulants? Give examples.

7 . What is sludge?

8 . How can the colour from textile dye waste removed?

9 . Define Noise and give the units used to describe the level of noise.

10 . Give the major objectives of ISO 14000 series.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Write briefly about the different layers of atmosphere. (4)

  B. Explain in detail pollution in Textile industries. (8)

(OR)

  C. Write briefly about depletion of Ozone layer and its consequences. (4)

  D. Explain Greenhouse effects and its consequences? (8)

12. A. Give the various sources of Air Pollution in Textile Mill. (4)

  B. Tabulate indoor and outdoor pollutants and Explain air quality standards. (8)

(OR)

  C. Write short notes on causes of air pollution. (4)

D. Explain different air pollutants and give the air quality standards in India. (8)

13. A. What are the pollutants released during wet processing? (4)

B. Give the characteristics of waste water from Textile industries. (8)

(OR)

C. How will you determine BOD? (4)

D. Explain the impacts of water pollution over various parameters. (8)

14. A. What are the various steps to reduce water consumption in textile industry? (4)

B. Give the tolerance level of effluents in Wet Processing of Textiles and give the ideas to control the tolerance level. (8)

(OR)

C. Discuss about sludge treatment. (4)

D. Explain different techniques of effluents treatment. (8)

15. A. How noise pollution in textile industries can be controlled? (4)

B. Give the various sources of Noise pollution in textile industry and its effects. (8)

(OR)

C. Define the term "Eco labels" with reference to textiles with suitable examples. (4)

D. Explain the new challenges towards achievements of rigid standards in Textile Processing Effluents. (8)

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PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1. Write the meaning and definition of Ethics.

2. What is the importance of civic virtue?

3. What is "Moral-Autonomy"?

4. What is the meaning of the terms "Thrift" and "Tranquility" in relation to character development of an individual?

5. What are the different types of accidents?

6. Write down the relationship between Law and Ethics.

7. What is Self-esteem?

8. How the values are different from attitudes?

9. What is Non-Verbal communications?

10. Write the five golden rules of goal setting.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Describe the six characteristics of a professional in detail.   (4)

    B. What are different types of Ethics? Explain each one in detail.   (8)

(OR)

    C. Enlist three stages in which the behavioral pattern is addressed between an employee and employer.   (4)

    D. What are the rules that a professional must follow while discharging his/her duties in an organization?   (8)

12. A. Explain the following two emotional intelligence skills: Humility and Self-confidence.   (4)

B. How does a positive workplace create a win-win situation for both the employer and employees? (8)

(OR)

C. Explain Work place Spirituality. (4)

D. What is moral dilemma? Explain in detail with one example. (8)

13. A. Explain few difference between Lawrence Kohlberg and Carol Gilligan moral development theories. (4)

B. Explain three stages of Kohlberg's moral development theory. (8)

(OR)

C. What is the importance of Risk Assessment? (4)

D. Explain the specific ways in which engineering societies can promote ethics. (8)

14. A. Explain the meaning and significance of term 'Perception'. (4)

B. Write the meaning of self-development and Explain ten steps involved in self-development. (8)

(OR)

C. What is the importance of 'Goals' in one's life? (4)

D. Explain in detail about the possibilities to change the attitude of individuals. (8)

15. A. Define Time-Management and write the importance of same to an individuals. (4)

B. Describe various steps involved in developing effective listening skill. (8)

(OR)

C. Explain the importance of Visual Communication. (4)

D. What are the four tips involved in problem-solving process? (8)

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Registration Number ☐☐☐☐☐☐☐

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Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri
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APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester	: V	Time:3 Hours
Course Code &Title	: 5.1 Weaving Technology and Textile Calculations-IV	Maximum Marks:80

PART-A
(10×2=20 Marks)
Answer all the questions within two to three sentences

1 . Define the term Shuttle less weaving machine.

2 . What do you mean by Special Jacquard? Give an example.

3 . Classify the Rapier weaving machine.

4 . Define Jacquard Shedding and mention 2 important parts of Jacquard.

5 . Write the advantages of Cross border jacquard.

6 . Write the uses of Leno Jacquard machine.

7 . Write the Ashehursts equation to find the yarn Diameter of N_e Cotton count.

8 . Find the Diameter of 6^S cotton yarn by using Peirce formula.

9 . Define Cloth Cover.

10 . Write the Pierce formula to find the yarn diameter in inches, when the yarn count is given in tex system.

PART-B
((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Write the advantages of Shuttle less weaving machine. (4)

    B. Briefly explain the different phases of weft insertion on Projectile loom with neat line diagram. (8)

    ### (OR)

    C. Write the difference between Air jet and Water jet looms. (4)

    D. With neat diagram explain the Dewas system of weft insertion on Rapier loom. (8)

12. A. Write the classification of Jacquard. (4)

    B. Explain the working of Single Lift Single Cylinder Jacquard with neat line diagram. (8)

<div align="center">(OR)</div>

C. Briefly explain the function of Griffe block of Jacquard. (4)

D. With line diagram explain the working of Double lift Double Cylinder Jacquard. (8)

13. A. Define and state the objectives of special Jacquard. (4)

B. Explain the working mechanism of Cross border jacquard with neat line diagram. (8)

<div align="center">(OR)</div>

C. Write the advantages and disadvantages of self-twilling Jacquard mechanism. (4)

D. Explain the mechanism and working principle of Inverted hook jacquard. (8)

14. A. What is the count of a polyester yarn in tex whose dia in 1/151 inches. (4)

B. Calculate the diameter of the following yarns by using Ashenhursts formula. (8)
   i) 32^S Cotton yarn   ii) $2/60^S$ Cotton yarn
   iii) 12^S Woollen yarn   iv) 40^S Worsted yarn

<div align="center">(OR)</div>

C. Calculate the diameter of the following yarns by using Peirce formula. (4)
   i) 10^S ii) 80^S iii) 32^S iv) 120^S

D. Calculate the diameter of the following yarns by using Peirce formula. (8)
   i) $2/60^S$ ii) $2/20^S$ ii) $2/40^S$ iv) $2/120^S$

15. A. Calculate the total cover of a plain cotton fabric is woven with the following details.(Density of cotton is 1.52 gms/Cm³) (4)
   Warp : 20 tex; 28 Ends per Cm
   Weft : 35 tex : 25 Picks per Cm

B. Find out the Warp and Weft Percentage cover of the following particulars. (8)
   i)   Warp : 40^S Worsted – 60 Ends Per Inch
   ii)   Weft : 36^S Worsted – 52 Picks Per Inch

<div align="center">(OR)</div>

C. Calculate the total cover of the cloth from the following particulars. (4)
   (Density of cotton is 1.52 gms/Cm³)
   Warp : 30 tex; 20 Ends Per Cm
   Weft : 20 tex : 30 Picks Per Cm

D. Compare the Relative closeness of Warp yarns in the following two plain cloth. (8)
   i) 20^S Cotton : 56 Ends Per Inch   ii) 44^S Cotton : 88 Picks Per Inch

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri
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APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester   : V   Time:3 Hours

Course Code &Title   :   **5.1 Weaving Technology and Textile Calculations-IV**   Maximum Marks:80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1. Define the term Shuttle less weaving machine.

2. What do you mean by Special Jacquard? Give an example.

3. Classify the Rapier weaving machine.

4. Define Jacquard Shedding and mention 2 important parts of Jacquard.

5. Write the advantages of Cross border jacquard.

6. Write the uses of Leno Jacquard machine.

7. Write the Ashehursts equation to find the yarn Diameter of Ne Cotton count.

8. Find the Diameter of 6^S cotton yarn by using Peirce formula.

9. Define Cloth Cover.

10. Write the Pierce formula to find the yarn diameter in inches, when the yarn count is given in tex system.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Write the advantages of Shuttle less weaving machine.   (4)

    B. Briefly explain the different phases of weft insertion on Projectile loom with neat line diagram.   (8)

(OR)

    C. Write the difference between Air jet and Water jet looms.   (4)

    D. With neat diagram explain the Dewas system of weft insertion on Rapier loom.   (8)

12. A. Write the classification of Jacquard.   (4)

    B. Explain the working of Single Lift Single Cylinder Jacquard with neat line diagram.   (8)

(OR)

C. Briefly explain the function of Griffe block of Jacquard. (4)

D. With line diagram explain the working of Double lift Double Cylinder Jacquard. (8)

13. A. Define and state the objectives of special Jacquard. (4)

B. Explain the working mechanism of Cross border jacquard with neat line diagram. (8)

(OR)

C. Write the advantages and disadvantages of self-twilling Jacquard mechanism. (4)

D. Explain the mechanism and working principle of Inverted hook jacquard. (8)

14. A. What is the count of a polyester yarn in tex whose dia in 1/151 inches. (4)

B. Calculate the diameter of the following yarns by using Ashenhursts formula. (8)
   i) 32^S Cotton yarn   ii) $2/60^S$ Cotton yarn
   iii) 12^S Woollen yarn   iv) 40^S Worsted yarn

(OR)

C. Calculate the diameter of the following yarns by using Peirce formula. (4)
   i) 10^S ii) 80^S iii) 32^S iv) 120^S

D. Calculate the diameter of the following yarns by using Peirce formula. (8)
   i) $2/60^S$ ii) $2/20^S$ ii) $2/40^S$ iv) $2/120^S$

15. A. Calculate the total cover of a plain cotton fabric is woven with the following details.(Density of cotton is 1.52 gms/Cm³) (4)
   Warp : 20 tex; 28 Ends per Cm
   Weft : 35 tex : 25 Picks per Cm

B. Find out the Warp and Weft Percentage cover of the following particulars. (8)
   i)   Warp : 40^S Worsted – 60 Ends Per Inch
   ii)   Weft : 36^S Worsted – 52 Picks Per Inch

(OR)

C. Calculate the total cover of the cloth from the following particulars. (4)
   (Density of cotton is 1.52 gms/Cm³)
   Warp : 30 tex; 20 Ends Per Cm
   Weft : 20 tex : 30 Picks Per Cm

D. Compare the Relative closeness of Warp yarns in the following two plain cloth. (8)
   i) 20^S Cotton : 56 Ends Per Inch   ii) 44^S Cotton : 88 Picks Per Inch

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri

Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester   :   V   Time:3 Hours

Course Code & Title   :   **5.2 Fabric Structure-IV**   Maximum Marks: 80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1. Define Chitzing in Extra weft.

2. What is "Alhambra Quilts"?

3. How many series of warp and weft are required to weave patent satin?

4. Name the series of warp and weft used in Modern Tapestry weaving.

5. Which count of graph paper is used for a 48 x 60 (EPI x PPI) fabric density.

6. Mention four different standard orders of arranging picks in weft backed cloth.

7. Name the two loom techniques, which are mostly used for producing two colour figured double cloth

8. Why do we use different colour in warp & weft for figured double cloth?

9. What are the additional systems required in shedding arrangement for leno weaving?

10. Differentiate between loose bottom doup & fixed bottom doup.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Discuss about the extra weft float control in extra weft designs.   (4)

      B. Differentiate between Extra Warp and Extra Weft Design technique.   (8)

(OR)

      C. Differentiate between Planting and Chitzing in extra warp & extra weft thread designs.   (4)

      D. Take a motif in 12 x 12 and enlarge to full structure of extra weft design with 1:1 ground & extra pick ratio.   (8)

12. A. Write a short note on Traditional Tapestry (4)

    B. Explain the healds and jacquard operation with straight tie-straight draft (In (8)
Tabular Format) for producing Patent Satin.

(OR)

    C. Draw a full structure of Patent satin using a motif of 6 x 6. (4)

    D. Indicate the design and thread interlacement diagram of reversible 3 pick weft (8)
tapestry.

13. A. Write the steps in proper sequence for development of Design on Graph Paper (4)
from a motif.

    B. Taking a guide graph in 24 x 24 and develop a warp backed structure on 48 x (8)
24.

(OR)

    C. Compare between warp backed and weft backed cloth. (4)

    D. Develop a graph in 32 x 32 for weaving Figured Single cloth using at least 4 (8)
different weaves

14. A. Compare between straight Tie- straight draft vs sectional Tie- sectional draft (4)
for producing figured double cloth.

    B. Construct the complete structure of 2 colour effect Double Cloth in 32 x 32 (8)

(OR)

    C. Draw the draft diagram of straight Tie- sectional draft method. (4)

    D. Construct the complete structure of 4 colour effect Double Cloth in 48 x 48. (8)

15. A. Compare among the three different types of shed formed in leno weaving. (4)

    B. Draw thread interlacement diagram and drafting order to produce a leno (8)
weave with pointed draft.

(OR)

    C. Write a short note on Net Leno (4)

    D. Sketch the drafting and interlacing diagram to produce stripe effect of Leno (8)
with plain weave

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Registration Number ☐☐☐☐☐☐☐

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
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Diploma in Handloom & Textile Technology
APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester : V   Time:3 Hours

Course Code &Title : **5.3 Chemical Processing of Textiles-III**   Maximum Marks:80

PART-A   (2×10=20 Marks)
Answer all the questions within two to three sentences

1 . Write two examples of commercial product of Carrier.

2 . Write any two reasons, why polyester are difficult to dye.

3 . Write any two defects of Jet dyeing machine.

4 . Which dyeing machine is more suitable for dyeing of yarn and fabric.

5 . What are the groups primarily involve in dyeing of polyamides.

6 . What is modified acrylics?

7 . What is printing?

8 . What is Discharge Printing.

9 . What is the role of Titanium dioxide in textile printing?

10 . Explain curing.

PART-B   ((4+8) ×5=60 Marks)
Answer all the questions in detail

11. A. What are preparatory processes required before dyeing of Synthetic material.   (4)

    B. Explain with line diagram dyeing polyester with Thermosol method of dyeing   (8)
    and also write its advantages.

(OR)

    C. Why polyester is required to be Heat Set before its wet processing, explain.   (4)

    D. Write in detail dyeing of polyester with carrier and mention its disadvantages.   (8)

12. A. Write about various defects commonly occurred in Beam dyeing machine.   (4)

    B. Explain working of Soft flow dyeing machine with suitable diagram.   (8)

(OR)

C. What are the common defects found in Jet Dyeing machine? (4)

D. Explain working of beam dyeing machine with suitable diagram. (8)

13. A. Explain the problem of barre in dyeing of Nylon give reasons. (4)

B. Write method of dyeing of acrylic fibre with suitable cationic dye recipe and its object of chemicals used. (8)

(OR)

C. Write about different types of retarders used in dyeing of Acrylic. (4)

D. Write the method of dyeing and objects of chemicals used in dyeing with 1:2 metal complex on Nylon (8)

14. A. Differentiate methods of printing and styles of Printing. (4)

B. Write in detail working of Rotary printing with neat diagram and also its limitations. (8)

(OR)

C. Write about importance / advantages of block printing (4)

D. Write with suitable figure about working of Transfer printing and advantages of transfer method of printing. (8)

15. A. Write process sequence of making Screen with photo chemical method. (4)

B. Define role of thickener in textile printing. Classify different types of thickeners used in textile printing. (8)

(OR)

C. Explain, why pigment is fixed using thermo fixation method. (4)

D. Write in detail the use of various ingredients used in printing paste. (8)

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
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Diploma in Handloom & Textile Technology
APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester : V   Time:3 Hours

Course Code &Title : **5.4 Principles of Textile Testing - I**   Maximum Marks:80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1 . State the objectives of textile testing.

2 . Find the median and mode of yarn count for the 11 samples tested. The values were 42.5, 41.2, 39.8, 41.4, 42.1, 40.5, 40.2, 40.0, 41.2, 39.2.

3 . Give the moisture regain value of any two textile fibres.

4 . State the advantage of electrolytic hygrometer.

5 . What is direct system of yarn numbering?

6 . Enlist any four indirect systems of yarn numbering.

7 . What are the two twist directions in yarn? Give their diagrammatic representation.

8 . What is twist multiplier? State its usage.

9 . Highlight the importance of yarn evenness.

10 . List the various expressions of yarn irregularity.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Calculate the percentage mean range for the strength value of 40ˢ Ne produced (4) from 5 different ring frames. Five values were obtained from each ring frame and they are given below:

Particulars	Strength in pounds				
Ring frame I	58.5	52.4	53.8	59	62
Ring frame II	59.2	56.6	54.2	60.2	60.5
Ring frame III	61.5	60.2	58.8	59.6	60.4
Ring frame IV	58.4	59.7	61.4	60.8	61
Ring frame V	58	57.2	58.2	56.2	56.4

B. In a spinning mill, lea strength in pounds for 8 samples of ring frame 1 and 2 (8) running same count is given below. Determine which of the two ring frames is producing consistent yarn strength by finding CV%.

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1 . State Economic Importance of Handloom Industry.

2 . Write any two objectives of Primary Handloom Weavers Co-operative Society.

3 . Define Handloom Cluster.

4 . How Product Diversification can be achieved in Handloom products?

5 . Explain the term "Market" and "Marketing".

6 . Write about "Importance of Branding".

7 . Name the methods of Data collection.

8 . What are the objectives of pricing?

9 . Write any two key elements of Entrepreneurship?

10 . What is E-Commerce and M-Commerce?

PART-B ((4+8)×5=60 Marks)

Answer all the questions in detail

11. A. Describe history of Handloom Industry. (4)

    B. Explain organisational structure of Handloom Industry. (8)

    (OR)

    C. Explain establishment and functions of Primary Handloom Weavers' Cooperative Society. (4)

    D. Explain the Socio-Economic Importance of Handloom Industry. (8)

12. A. Write objectives and functions of IIHT. (4)

    B. Explain about the cluster development initiatives for Handloom Industry. (8)

(OR)

C.   Explain National Handloom Development Programme (NHDP).   (4)

D.   Define Product Diversification. Also explain various types of product   (8)
     diversification.

13. A.   Write the objectives and importance of marketing.   (4)

     B.   Explain about Classification of market.   (8)

(OR)

C.   State the various elements of Marketing mix (8-P's).   (4)

D.   Explain the modern approaches in marketing.   (8)

14. A.   Difference between Single pricing and Variable pricing.   (4)

     B.   What is Marketing Research? Also explain various types of Marketing   (8)
          Research.

(OR)

C.   What are the steps involved in formulating pricing policies?   (4)

D.   Define pricing. Discuss various methods of pricing for Handloom Products.   (8)

15. A.   Distinguish between Innovative Entrepreneur and Adoptive Entrepreneur.   (4)

     B.   Explain significance and impact of "Rural-Marketing".   (8)

(OR)

C.   Explain the roles of District Industry Centre (DIC) in promoting   (4)
     Entrepreneurship.

D.   What is E-Business and explain various types of E-Business.   (8)

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri
Diploma in Handloom & Textile Technology
APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester   :   VI   Time:3 Hours

Course Code &Title   :   **6.1 Weaving Technology & Textile Calculations-V**   Maximum Marks:80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1. What are the specialties of Jamdani weaving?

2. What do you understand about Ikat?

3. What are the systems of harness mounting?

4. Define the term of 'Casting Out' in jacquard.

5. Write the formulae to find out the EPI of new cloth with known count, if the Count and EPI of the existing cloth is given in Indirect system.

6. Two fabrics are produced with the same count of yarn and threads per inch, but one fabric woven with plain weave and another with twill weave. which fabric will be more compact and why?

7. Why do we calculate the amount of warp and weft?

8. Give any two types of wastage to be considered in the cloth calculation.

9. How does the selling price vary from the cost price?

10. List any four factors involved in the calculation of a cost price of a saree?

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Discuss the salient features and weaving of Paithani saree.   (4)

     B. Explain the production methods followed in kancheepuram silk saree weaving and its specialties.   (8)

(OR)

     C. Compare the features of Jala & Adai weaving technique.   (4)

     D. Give a classification of Ikat weaving and a description of various techniques used to create Ikat fabrics.   (8)

12. A. Differentiate between London and Norwich systems of harness mounting (4)

   B. With the help of neat sketch explain about straight and sectional ties. (8)

   (OR)

   C. With the help of line sketch, briefly explain the Norwich harness system. (4)

   D. If a harness is tied up to 80^s sett and it is desired to produce a fabric of 64^s sett, (8) how many hooks would have to be cast-out in 400 hook (Assume 8 short row of hooks) jacquard and how should they be distributed in order to avoid re harnessing.

13. A. A polyester fabric is woven with 40 Tex yarn having 80 ends per inch. What (4) count of yarn should be used to in the fabric by maintaining the same level of compactness with 60 EPI.

   B. A plain cloth is woven with 40^s cotton and it is required to change the weave (8) into

   i) 5 thread satin   ii) 1/2 &2/1 combined twill

   What count of yarn is to be used to produce the fabric by maintaining the same level of compactness?

   (OR)

   C. A 6 thread twill is woven using 30^s Ne yarn and required to change in to plain (4) weave. What count of yarn is required to maintain the same level of compactness?

   D. A cotton grey cloth is woven with count of 20^s x 30^s having 60 Ends X 50 (8) Picks per inch. It is required to produce a cloth with the same compactness but 10% heavier. What count of yarn, EPI and PPI should be used in the new fabric?

14. A. Calculate the weight in **ounce per square yard** and **Grams per square** (12) **meter** of a fabric with following details

   Count: 40^s x 36^s ; Threads per Inch: 60 x 56 ; Crimp% : 4% X 6% ; Length of cloth= 100 Yards ; width of cloth= 1 Meter

   (OR)

   B. A cloth is 45 inches wide on 72^s ST reed and is woven with 80^s warp. The 60^s (12) Ne cotton weft is woven with 60 picks per inch. The selvedges ½ inches on each side are drawn 4 ends per dent. The length of cloth is 100 yards. The

regain of warp and weft is 4% and 8% respectively. By considering the details find out

    i)   Weight of the warp in the fabric in pounds.

    ii)   Weight of the weft in the fabric in pounds.

    iii)   Weight of fabric in grams per square meter.

15. A. Calculate the sale price of polyester fabric of 100 meters length from the following particulars: (12)

Width of cloth	: 120 Cms
Reed width	: 130 Cms
Ends per cm in Reed with 2 ends per dent	: 38
Picks per cm in the cloth	: 32
Warp count	: 40 Denier
Weft count	: 50 Denier
Selvedge (Assume 4 Per dent)	: 128 ends on each side
Warp regain	: 4%
Warp waste	: 3%
Weft waste	: 2%
Cost of warp yarn	: Rs 400/- per Kg
Cost of weft yarn	: Rs 360/- per Kg
Warp preparatory charge	: Rs 40/- Per Kg
Weft preparatory charge	: Rs 15/- per Kg
Weaving charges	: Rs 20/- per meter
Processing charges	: Rs 5/- per meter
Other cost	: 10% over the cost
Profit	: 15%

(OR)

B. After considering the following details, estimate selling price per meter of the fabric   (12)

Cloth length	: 100 Meters
Weight of warp consumed including wastage	: 12 Kg
Weight of weft consumed including wastage	: 20 Pounds

Cost of warp yarn	:	Rs 2000/- per 10 Kg
Cost of weft yarn	:	Rs 1800/- per 10 Kg
Warp preparatory charges	:	Rs 700/- per 10 Kg
Weft preparatory charges	:	Rs 50/- per Kg
Dyeing charges for both warp and weft	:	Rs 600/- per 10 Kg
Weaving charges	:	Rs 35/- per meter
Over head Charges	:	15% of the production cost
Margin of profit	:	20% of the cost price

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
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Diploma in Handloom & Textile Technology
APRIL/MAY-2023 SEMESTER EXAMINATION
(Regulation-2014)

Semester   : VI   Time:3 Hours

Course Code & Title   : **6.2 Fabric Structure V**   Maximum Marks: 80

PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1. Name two styles of fabrics which is produced by combination of Extra warp and Extra weft.

2. Mention two advantages of extra warp figuring over extra weft figuring technique.

3. How the finer ends are interlaced with coarser pick in ground for patent satin?

4. How many beams are required to weave figured pique fabric and why?

5. What is true Dasmask?

6. How do you place 4 colours while weaving reversible weft tapestry?

7. Write any two types of jacquard setting to produce figured terry fabrics.

8. How the punch card is divided to produce a sectional tie in 3 pick figured terry?

9. Name the place of origin of Patola and Paithani.

10. Name the traditional technique used to weave Banarasi saree.

PART-B   ((4+8)×5=60 Marks)
Answer all the questions in detail

11. A. Discuss the advantages of using healds along with jacquard for preparing extra warp design.   (4)

     B. Draw a motif of 0.5-inch x 0.5-inch size. Indicate the complete extra weft graph design on 20 x 40 with 1 ground: 1 extra weft ratio.   (8)

(OR)

     C. Discuss about different method of disposal of extra warp & weft threads, in the portion of the cloth where it is not used for figuring.   (4)

     D. Indicate a complete structure of extra warp figuring with 1:1 order in 48 x 24 using a motif of 24 x 24.   (8)

12. A. Explain the working principle and use of working comber board method in   (4)

patent satin weaving.

B. Construct a Fast back figured pique structure on 48 x 48 using basic figure on (8)
16 x 12.

(OR)

C. Mention the classification of figured pique structure and mention the (4)
difference between them.

D. Construct a patent satin design in 36 x 40 by taking a guide graph of 12 x 10. (8)

13. A. Explain the weft tapestry weaving using heald arrangement system along with (4)
jacquard set up.

B. Develop a 5-thread damask in 40 x 45 using the 16 x 15 guide graph with (8)
Five Heald shafts and 2 & 3 decked mail eyes. (3 picks per card).

(OR)

C. Discuss about different methods of Damask weaving. (4)

D. Show the design and interlacement diagram of any two weaves of 4 picks (8)
reversible weft tapestry.

14. A. Draw the system of sectional tie sectional draft with healds in jacquard to produce (4)
figured terry.

B. Explain the working Principle of Inverted hook jacquard for weaving figured (8)
Terry with neat sketch.

(OR)

C. Write the punching procedure for terry fabric produced using inverted hook (4)
jacquard.

D. Taking a guide graph of 10 x 10 complete a structure of 4 pick terry in suitable (8)
repeat.

15. A. Write a Short note on Jamdani Saree. (4)

B. Explain the salient feature (minimum four each) of two popular traditional (8)
fabrics of North-East India.

(OR)

C. Mention different weaving particulars of Cotton Shirting and Bed Sheets. (4)

D. Explain the salient feature (minimum two each) of Kancheepuram, Kota (8)
Doria , Pochampally, Chanderi Sarees.

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PART-A   (10×2=20 Marks)
Answer all the questions within two to three sentences

1 .   State reasons for using sodium alginate as thickener in reactive printing.

2 .   Write the advantages of using pigments in printing.

3 .   Mention the recipe for printing of silk with metal complex dyes.

4 .   Which of the states in India are famous for Kalamkari printing?

5 .   State the objectives of textile finishing.

6 .   Write the principle involved in the compressive shrinkage process.

7 .   What are the changes take place during the process of mercerization?

8 .   Differentiate water proof and water repellency finish.

9 .   List any two harmful chemicals used in textile finishing process.

10 . Define Azo ban.

PART-B   ((4+8)×5=60 Marks)

Answer all the questions in detail

11. A. Write about the role of thickeners used in printing.   (4)

    B. Explain on the process of printing cotton fabrics with reactive dye using flash   (8)
        ageing and wet developing method.

(OR)

    C. Differentiate dye and pigments.   (4)

    D. Explain on the process of direct style of printing on cotton using pigments.   (8)

12. A. Write short notes on Batik style of printing.   (4)

    B. Explain on the process of printing silk with Acid dyes.   (8)

(OR)

C. What do you mean by tie and dye style of printing? Write a note on it. (4)

D. Explain the process of printing polyester with Disperse dyes. (8)

13. A. Classify textile finishing process. (4)

B. Describe in detail on the factors affecting the selection of finishes. (8)

(OR)

C. Compare the process of friction and schreiner calendaring. (4)

D. Explain in detail on the process of sanforising with a neat sketch. (8)

14. A. State the objectives of mercerization process and list the process parameters involved. (4)

B. Explain the process of yarn mercerization with a neat sketch. (8)

(OR)

C. Write a brief note on stiffening process. (4)

D. Write about the theories involved in flame retardancy. Also, give a recipe and procedure to impart flame retardancy in cotton fabrics. (8)

15. A. What is bio-finishing? Discuss. (4)

B. Discuss in detail on the harmful chemicals used in textile wet processing. (8)

(OR)

C. Write about the process of bio polishing on cotton fabrics. (4)

D. Explain the process of identification of water insoluble dyes in powder from. (8)

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Diploma in Handloom & Textile Technology

APRIL/MAY-2023 SEMESTER EXAMINATION

(Regulation-2014)

Semester   : VI   Time:3 Hours

Course Code & Title   : **6.4 Principles of Textile Testing - II**   Maximum Marks: 80

PART-A   (10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define the term "Tenacity" with unit of measurement with respect to tensile testing of textiles.
2. Expand CRE, CRT and CRL with respect to tensile testing of textiles.
3. Draw the principle diagram of inclined plane tensile tester.
4. Write any two important merits and demerits of universal tensile testing equipment. (Instron)
5. Draw any two methods of sample preparation diagram with dimension for tear strength test.
6. State any four important instrument / testing parameter that would affect the results of abrasion testing of fabric.
7. Write one example each for a fiber more susceptible to crease formation and more resistance to crease formation.
8. What are the two types of scales used for assessing the rubbing fastness of a dyed fabric?
9. Name any four dyeing defects commonly noticed during the dyed fabric inspection.
10. Expand ANSI and AQL

PART-B   ((4+8)×5=60 Marks)

Answer all the questions in detail

11. A. Explain the importance of stress-strain curve than the load elongation curve.   (4)
    B. With neat sketch explain the mechanism of measurement of tensile properties   (8) using CRL and CRE principle.

(OR)

   C. With graphical representation, explain the instantaneous and time dependent   (4) elastic recovery properties of textile materials.
   D. Discuss the various factors influencing the test results obtained from the   (8) tensile testing instruments.

12. A. List the merits and demerits of single yarn strength testing.   (4)

B. With neat sketch, explain the principle and mechanism of measurement of (8) single yarn strength.

(OR)

C. What is CSP and write the importance of corrected CSP (4)

D. With neat sketch, explain the principle and mechanism of measurement of (8) yarn strength using strain gauge principle.

13. A. Discuss the two types of sample preparation method for measurement tensile (4) strength of a fabric

B. With neat sketch, explain the measurement of tear strength of a fabric using (8) Elmendorf tear tester.

(OR)

C. Discuss the sample preparation method for measurement of pilling of fabric. (4)

D. With neat sketch, explain the measurement of abrasion resistance of a fabric (8) using Martindale abrasion tester.

14. A. Write brief note on the effect of yarn crimp on various fabric properties. (4)

B. With schematic diagram, Explain the method of measurement of bending (8) length, flexural rigidity and bending modulus of a fabric.

(OR)

C. Write short notes on measurement fabric shrinkage (4)

D. With line diagram, explain the sample preparation and measurement of (8) rubbing fastness of a dyed fabric.

15. A. Compare quality control and Quality assurance. (4)

B. Explain the procedure for fabric inspection system and method of grading (8) using 4 point system.

(OR)

C. What is the role of quality policy of any textile manufacturing company? (4)

D. Write short notes on   i) TQM   ii)Six Sigma (8)

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