

Registration Number

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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

APR/MAY-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : **IV**

Time:3 Hours

Course Code & Title : **HTPC209 Weaving Technology - I**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. List various faults in wound packages?
2. State the advantages of splicing process over knotting process?
3. What are the factors affecting size pick up?
4. What are the factors affect the warping efficiency?
5. Mention the different types of reversing motions used in power loom?
6. What are early shedding and late shedding?
7. Sate the functions of temples?
8. What is sley eccentricity?
9. What is 'pick-at-will' motion?
10. Write the formula to enumerate the length of fabric delivered in inches per minute in power loom?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Differentiate the precision winding process and drum winding process? (6)
B. Explain the working principle of electronic yarn clearers with suitable sketches? (10)
(OR)
C. Write briefly about the anti-ribboning device employed in winding machine? (6)
D. With a neat sketch explain the working of modern pirn winding machine? (10)
12. A. A wrap containing 2650 ends is required to be sized to 12%. The length of sized wrap on the beam is required to be 1120 yards. If the count of yarn is 30⁵ Ne, find out the weight of unsized warp and the weight of size to put on the wrap in lbs? (6)
B. With diagram explain the working principle of multi cylinder sizing machine? (10)

(OR)

- C. The fabric of 60 inch width and 52 EPI required to be produced. The warp beam is produced in a sectional warping machine with creel capacity of 240. Find out total number of ends in a beam and number of sections to be made? (6)
- D. Explain the working of modern warping machine with neat sketch? (10)

- 13. A. Compare tappet shedding and dobby shedding? (6)
- B. Explain the working mechanism of climax dobby with suitable diagram? (10)

(OR)

- C. Differentiate late shedding and early shedding with timing diagram? (6)
- D. Describe the working principle of negative tappet shedding mechanism in a loom with neat sketch? (10)

- 14. A. Write the advantages and disadvantages of negative let-off motions? (6)
- B. Describe the seven wheel take up motion and calculate theoretical and practical dividend? (10)

(OR)

- C. Differentiate and prove centre weft fork motion is better than the side weft fork motion? (6)
- D. With a neat sketch explain the working of fast reed warp protection mechanism and mention for which type of fabric weaving it is suitable and why? (10)

- 15. A. Construct different sections lay-out for a power loom shed? (6)
- B. Explain the working principle of shuttle changing mechanism with its advantages and disadvantages? (10)

(OR)

- C. Explain about the drop wires used in mechanical warp stop motion? (6)
- D. With neat sketches describe the working principles of any one type of multiple drop box motion? (10)

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Diploma in Handloom & Textile Technology

APR/MAY-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : **IV**

Time:3 Hours

Course Code & Title : **HTPC210 Fabric Structure – II**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. What are the directions of wadding in Bedford cord and welt? 2
2. Define 'Loose wadding' 2
3. Draw the diagram of Double width Double cloth and Tubular Double cloth 2
4. State the rule followed for stitching in the Self-stitched Double cloth 2
5. A treble width cloth is woven with 30" cloth width on the loom. Calculate the width of the fabric after removing it from the loom. 2
6. Indicate the warp and weft series used in the Warp-backed and weft-backed cloth 2
7. Classify the different pile fabrics 2
8. Indicate the 4 picks and 5 picks Terry weave. 2
9. Calculate the count of graph paper used to develop a figured graph for a cloth woven with 60 EPI and 68 PPI using 600 hooks jacquard 2
10. List the stages involved in developing a figured graph for the jacquard weaving 2

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Differentiate between Bedford cord and Welt weave structures (6)
B. Construct a wadded Bedford cord design, taking 16 ends and 1 wadding end. Indicate its draft and peg-plan (10)
- (OR)**
- C. Differentiate between Welt and Pique weave structures (6)
D. Construct a Fast-back wadded Welt structure, taking 12 picks (4 picks, 2 wadding picks, 4 picks, and 2 stitching picks. Indicate its draft and peg-plan. (10)
12. A. List the classification of Double cloth with the illustrative diagrams. (6)
B. Indicate the cloth interchanging plain Double cloth weave structure both in warp-way and weft-way. Draw its cross-section diagram. (10)

(OR)

- C. Indicate the weaves of Double width Double cloth and Tubular Double cloth. (6)
- D. Construct Double cloth weave, taking 3 up 3 down twill for the face cloth and 2 up 4 down twill for the back cloth. Stitch it using end-way center stitching. (10)
13. A. Differentiate between Warp-Backed cloth and Weft-Backed cloth (6)
- B. Construct a Warp-Backed cloth weave on 12 x 6. Using Weft Wadding, convert it into Weft-Wadded Warp-Backed cloth weave on 12 x 12. (10)
- (OR)**
- C. Indicate the Warp way imitation and Weft way imitation backed cloth. (6)
- D. Construct a Weft-Backed cloth weave on 6 x 12. Using Warp Wadding, convert it into Warp-Wadded Weft-Backed cloth weave on 12 x 12. (10)
14. A. Explain the three conditions to be followed in weaving Terry pile fabric (6)
- B. Draw the cross-section diagram of 3 picks Terry weave, forming piles on both sides, showing 9 picks after beating and 3 picks before beating. (10)
- (OR)**
- C. Differentiate between Velvetin and Velveteen (6)
- D. Indicate the Corduroy weave. Draw two cross-section diagrams, the first one showing before cutting and the second one showing after cutting the picks. (10)
15. A. Differentiate between Extra-warp and Extra-weft weaving. (6)
- B. Draw neat sketches of different types of Doups used in leno weaving. (10)
Draw the thread interlacing diagram of leno weave with its draft and peg-plan.
- (OR)**
- C. Differentiate between Gauze and Leno weave (6)
- D. Develop a figured graph in 48 x 48 with suitable binding weaves. (10)

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Diploma in Handloom & Textile Technology

APR/MAY-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : **IV**

Time:3 Hours

Course Code & Title : **HTPC212 Textile Testing – I**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. State the advantages of the random sampling method.
2. Enlist the importance of quality assessment and control in the textile industry.
3. How will you measure the moisture regain of the textiles
4. Mention the functions of the wet and dry bulb hygrometer.
5. Name the methods used to measure the fiber fineness.
6. “A completely solid fibre would have a degree of thickening of 1” – interpret the statement concerning fiber maturity.
7. Report the impact of humidity and temperature on yarn tensile properties.
8. Interpret the term “work of rupture”
9. What do you mean by index of irregularity in yarn?
10. Write a short notes on yarn twist types.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Report the steps involved in sampling fibers using Zoning method. (6)
B. Outline the importance of numerical and length biased sample methods in analysing the fiber samples from combed slivers and roving. (10)
- (OR)
- C. Brief the importance of the coefficient of variation and standard error in the sampling process. (6)
D. Evaluate the cut square method of yarn sampling with its pros and cons. (10)
12. A. Analyse the factors influencing the moisture regain (6)

B. How will you measure the relative humidity? Explain in detail the working of instrument used for the measurement of relative humidity. (10)

(OR)

C. Interpret the importance of controlling the testing room atmosphere with a suitable example. (6)

D. Illustrate and explain the measurement of moisture regain using the conditioning oven method. (10)

13. A. Analyse the limitations of the gravimetric method in measuring fiber fineness (6)

B. State and explain the process of measuring fiber fineness using airflow methods. (10)

(OR)

C. How are the fibers classified based on their visual appearance? Explain. (6)

D. Discuss in detail the method of measuring fiber length using comb sorter with the corresponding information to measure fiber staple length. (10)

14. A. Enlist the factors affecting the tensile test results obtained from testing instruments. (6)

B. Examine the working of single yarn strength tester with neat sketch. (10)

(OR)

C. Explain the working of bursting strength tester with sketch (6)

D. Describe the working of stelometer in analyzing the elongation and strength of the fiber bundle. (10)

15. A. Detail the method of evaluating yarn evenness using Cut and weigh methods (6)

B. Evaluate the working of continuous twist tester with a neat sketch for yarn twist measurements (10)

(OR)

C. Outline the method of measuring yarn count using Beesley's balance. (6)

D. Enumerate the working of Shirley yarn hairiness tester with suitable sketches. (10)

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APR/MAY-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : **IV**

Time:3 Hours

Course Code & Title : **HTPE202 Garment Manufacturing
Technology**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. List out the various department in Garment Industry.
2. List few points for the growth of apparel domestic industries in India.
3. Define the name “Pattern” in garment industry.
4. Why are the prepared patterns graded?
5. The total area of a spread is 6 sq.mtrs. The marker area on the spread is 5.1 sq.mtr.
Calculate the marker efficiency.
6. Define Dead heading in the spreading process.
7. List any two defects in stitches and seams.
8. Write any four quality characteristics required for Sewing Threads.
9. What is the Function of Feed dogs in Sewing machines?
10. Define Fusing and Pressing.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Give short notes on Apparel Industry in India. (6)
B. Explain the various departments in an apparel Industry and their functions. (10)
(OR)
C. Discuss the functional organization of an Apparel Industry with flow diagram. (6)
D. How the garments are classified. Discuss with examples. (10)
12. A. Draw the 8 Head theory of body measurement and discuss the influence on garment making. (6)

- B. Describe the pattern drafting principles. (10)
- (OR)**
- C. Define Grading and what are all the techniques in Grading. Explain. (6)
- D. What kind of tools are used in garment industry for patterns and stitching? (10)
Explain them in detail.
13. A. List the basic requirements of Spreading. (6)
- B. Explain with neat sketches any four modes of Spreading. (10)
- (OR)**
- C. Describe the requirements of cutting and the different types of Cutting methods. (6)
- D. With neat diagram explain the Straight Knife Cutting Machine. (10)
14. A. Enumerate the Federal classification of Stitches. (6)
- B. Explain the Seam types and draw neat sketches of any two types of seams. (10)
- (OR)**
- C. Discuss in detail about types of Labels and their uses. (6)
- D. List any five different accessories and their uses with neat diagrams. (10)
15. A. Classify the sewing machine based on their bed types with sketches. (6)
- B. Draw the Single needle Lock Machine and write the parts and functions. (10)
- (OR)**
- C. Describe the different types of needles and their applications. (6)
- D. Elaborate with neat sketch the passage of Buttonhole sewing machine. (10)

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APR/MAY-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : **IV**

Time:3 Hours

Course Code & Title : **HTPE203 Nonwoven Technology**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define the term “nonwoven”.
2. List any four products made with nonwoven materials.
3. List the quality parameters to be checked for nonwoven web.
4. State the difference between card and air-laid fibre web preparation methods
5. Describe the principle of web bonding by means of stitching technique
6. State the fibre requirements for water jet based web bonding method
7. Describe any four properties of meltblown fabrics
8. Explain any four properties of spunbonded fabrics
9. Why nonwoven fabric needs chemical finishing? Justify
10. If the nonwoven is used for filtration applications, list the required testing to be carried out?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. List the various types of fibres and their characteristics to develop four different nonwoven based products (6)
B. Explain the sequence of fibre to nonwoven fabric conversion and classify the nonwoven process. (10)
- (OR)
- C. Describe the application of nonwovens in the area of geotextiles (6)
D. Analyze the fibre type, fibre requirements and its preparation for nonwoven manufacturing process. (10)
12. A. Compare the dry laid and wet laid techniques (6)
B. Explain the staple fibre web formation using carding process and how is the condensed web made? (10)

(OR)

- C. Explain the cross-laid web laying on the fabric properties. (6)
- D. Explain about wet-laid process with neat diagram. (10)

- 13. A. Explain the features of needle used in needle-punching process. (6)
- B. Interpret the method of mechanical bonding using needle-punching with diagram. (10)

(OR)

- C. Describe the principle of anyone thermal bonding process. (6)
- D. Explain about any two major chemical binders and describe the working of spray bonding process with neat diagram. (10)

- 14. A. Explain the characteristics of spun-bonded nonwoven web in detail (6)
- B. Describe the nonwoven web formation by means of spunbonding system with the help of schematic diagram. (10)

(OR)

- C. Explain the effect of machine variables on the characteristics of meltblown nonwoven webs. (6)
- D. Describe the web formation by means of meltblown technique with the help of schematic diagram. (10)

- 15. A. Describe any four testing carried out at nonwoven preparation stage. (6)
- B. Explain any four chemical treatments applied on the nonwoven fabric. (10)

(OR)

- C. Explain any three important characterization of nonwoven fabrics relevant to ASTM (or) other standards. (6)
- D. Analyze any four mechanical finishes applied on the nonwoven fabric. (10)

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APR/MAY-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : **III**

Time:3 Hours

Course Code & Title : **HTPC205 Chemical Processing of
Textiles-I**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. What are the objectives of pretreatment?
2. What is the function of stabilizer in H₂O₂ bleaching?
3. What are Chromophores and Auxochromes? Define with examples.
4. What is exhaustion percentage in exhaust dyeing?
5. How the fastness properties of direct dye can be improved?
6. What type of bond is formed by reactive dyes with cotton? Name 2 bond/forces involved in dyeing with Direct dyes.
7. What is Tendering and Bronziness?
8. Write the properties of Vat dyes.
9. Define the Crabbing and Decatising process of wool.
10. What is Metal Complex dyes?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Write a common type of enzyme used in enzyme desizing. What are the advantages of enzyme desizing? (6)
B. Describe the NaOCl Bleaching process for cotton with chemical reactions. (10)
What are the advantages and disadvantages of NaOCl bleaching?
(OR)
C. Explain the Saponification and Emulsification process involved in cotton scouring. (6)
D. What are the objectives of Singeing? Describe the Gas Singeing with neat diagram and mention the disadvantages of this process. (10)

12. A. What are the different types of padding mangle? Explain three Bowl padding mangle with neat diagram. (6)

B. Describe the working procedure of package dyeing machine with neat diagram. (10)

(OR)

C. Write a short note on Vertical Can Dryer machine. (6)

D. Describe the working procedure of Jet Dyeing machine with neat diagram. (10)

13. A. What are the properties of Direct dyes? Classify Direct dyes. (6)

B. Describe the Direct dyeing process with dyeing mechanism, recipes and process conditions. (10)

(OR)

C. Explain the chemistry of Vinyl Sulphone and Triazine based Reactive dyes. (6)

D. Describe in details the mechanism, recipes and dyeing procedure of H reactive dyes. (10)

14. A. Brief about the steps involved in the dyeing with Azoic dyes. (6)

B. Describe in details the dyeing mechanism, recipes and application of Vat dyeing on cotton. (10)

(OR)

C. Write the properties and advantages of Solubilized Vat dyes. (6)

D. Describe in details the mechanism, recipes and dyeing procedure involved in Sulphur dyeing on cotton. (10)

15. A. Explain different types of Woolen Setting Process. (6)

B. Describe in details the bleaching process of Wool with H_2O_2 . (10)

(OR)

C. Explain the dyeing of Wool with Acid dyes. (6)

D. Describe in details the application methods of Mordant dyes and mention the advantages and disadvantages of each method. (10)

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Diploma in Handloom & Textile Technology

APR/MAY-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : **IV** Time:3 Hours
Course Code & Title : **HTPC211 Chemical Processing of Textiles – II** Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. What is Reduction Clearing (RC)? Which chemicals are used for RC?
2. Write the parameters that influence Heat Setting of polyester.
3. What are the differences between dyeing and printing?
4. Write the methods of printing.
5. What is hygroscopic agent? Mention an example of hygroscopic agent used in printing of cotton with direct dyes.
6. Write the name of thickeners commonly used in reactive and pigment printing?
7. What are the objectives of textile finishing?
8. Define napping and shearing.
9. What is DMDHEU? Mention the use of this chemical in textile chemical finishing.
10. Why antistatic finish is needed for synthetic fibers?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. What are the properties of Disperse dyes? Brief on the methods of Disperse dyeing. (6)
B. Describe the Carrier dyeing of polyester with mechanism, recipes and process conditions. What are the disadvantages of this process? (10)
- (OR)**
- C. Explain the common dyeing defects and remedies related to polyester dyeing with disperse dyes. (6)
D. Describe in details the Thermosol dyeing method of polyester with neat diagram. Discuss the advantages of Thermosol dyeing. (10)

12. A. Brief on the advantages and disadvantages of Screen Printing. (6)
B. Discuss in details the ingredients used to prepare printing paste and describe their functions. (10)

(OR)

- C. Brief on the advantages and disadvantages of Block Printing. (6)
D. Describe in details the various styles of printing? Briefly differentiate Discharge and Resist printing? (10)

13. A. Describe the Pigment Printing process on cotton with direct style. (6)
B. Explain in details the Reactive Printing process with recipes, function of ingredients, printing procedure, fixation and after treatment. (10)

(OR)

- C. Discuss the silk printing process with Acid dyes. (6)
D. Describe in details the printing procedure of polyester using disperse dyes. (10)

14. A. Classify the textile finishing process on textile materials. (6)
B. What are the types of Calendaring? Describe the process of any 2 types of calendaring with suitable diagram. (10)

(OR)

- C. Explain briefly the process of Napping, Shearing and Sueding. (6)
D. Describe in details the sanforizing process used for mechanical finishing on textile materials. (10)

15. A. Classify softeners. What are the properties of cationic softeners? (6)
B. What is the mechanism of crease formation? Explain the process, chemistry and mechanism of Wrinkle Recovery finish on cotton using DMU chemicals. (10)
What are the disadvantages of DMU based chemistry for resin finish?

(OR)

- C. Differentiate between water proof and water repellency finish with examples. (6)
D. Describe the soil repellency and soil release finishing with the chemicals involved and the application process in details. (10)
