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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

Bargarh/Fulia/Guwahati/Jodhpur/Salem/Varanasi/Champa/Kannur/KHTI-Gadag/SPKM-Venkatagiri/KLB-IIHT-Hyderabad

Diploma in Handloom & Textile Technology

NOV/DEC-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. What is the function of tensioning devices in winding?
2. Explain the importance of splicing in modern winding.
3. Write the formula to calculate the size pick up percentage.
4. A fabric requires 4,800 ends. If creel capacity is 400 ends, calculate the number of sections required.
5. What are the primary, secondary, and auxiliary motions of a power loom?
6. Between early picking and late picking which one is more suitable for high-speed looms?
7. What is the function of let-off motion?
8. Why are the temples used in weaving?
9. Name two important features of automatic looms.
10. What is 'pick-at-will' motion?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Calculate the production in kgs /8 hours of a modern cone winding machine with delivery speed – 640 yards/min, yarn count – 32^s Ne and efficiency – 80%. (6)
 - B. Explain the passage of yarn through a precision winding machine with a neat diagram. (10)
- (OR)
- C. Discuss the principle of electronic yarn clearers. How do photo-electric and capacitance type clearers work? (6)
 - D. With suitable examples, discuss about various faults in wound package and their causes and remedies. (10)

12. A. A warp containing 2400 ends of 44^s yarn is sized to be 10%. If the sized warp weight is 120 lbs. Calculate the warp length. (6)
- B. Describe the mechanism and working principle of a sectional warping machine. (10)
- (OR)
- C. Define efficiency in warping. How is it calculated? How do you calculate creel capacity in beam warping? (6)
- D. Explain the working principle of a multi-cylinder sizing machine with a neat sketch. (10)
13. A. Design a tappet for plain weave (1/1). (6)
- B. Explain the working principle of cone over-pick mechanism with suitable diagram. (10)
- (OR)
- C. Define reversing motions in tappet shedding. (6)
- D. What is a dobby shedding mechanism? How does it improve over tappet shedding? What is parallel motion in under-pick? How does it improve performance? (10)
14. A. Differentiate between positive and negative let-off motions (6)
- B. Draw and explain the beat-up cycle of a crank and sley mechanism. (10)
- (OR)
- C. Differentiate between side fork and centre fork weft detection. (6)
- D. Explain the loose reed motion with diagram and working principle. (10)
15. A. State two functions of multiple box motion. Discuss the various factors considered while preparing the lay-out for a loom shed (6)
- B. A loom runs at 200 RPM with 70 picks/inch fabric, working 10 hours/day at 80% efficiency. Find the production in meters per day. (10)
- (OR)
- C. Mention the advantages of cop changing mechanism over shuttle changing. (6)
- D. Explain the mechanical warp stop motion with the help of a sketch. How does it prevent weaving defects? (10)

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Diploma in Handloom & Textile Technology

NOV/DEC-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. Which weave produces a horizontal cord effect?
2. When is a welt referred to as a fastback welt?
3. Mention different types of double cloth
4. Draw the line diagram of a thread interchanging double cloth.
5. What are the objectives of producing treble cloth?
6. When is a backed fabric called reversible?
7. Classify the different types of pile fabrics.
8. Differentiate between loop pile and cut pile.
9. What are the factors influencing the selection of appropriate count of graph paper?
10. List the stages involved in developing a figured graph for jacquard weaving.

PART-B

(6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Construct the design and draft of a 1/2 twill -faced Bedford cord weave. (6)
B. Construct the design, draft and interlacement diagram for a plain-faced (10)
Bedford cord using 12 ends and 4 picks.
(OR)
C. Differentiate between Bedford cord and welt weave structures. (6)
D. Construct the design, draft and interlacement diagram of a fast-back welt (10)
structure repeating on 6 x 14, keeping the 3rd, 4th, 9th, and 10th picks as
wadding picks in the repeat.

12. A. List the classification of Double cloth with the illustrative diagrams. (6)
B. Construct a self-stitched double cloth design using a 3/3 twill weave for the face and a 2/4 twill weave for the back. Mention the stitching method used. (10)

(OR)

- C. Differentiate between double-width cloth, tubular cloth, and two-ply cloth. (6)
D. Construct a center warp-stitched double cloth with the following particulars: (10)
face weave: 2/4 twill; back weave: 3/3 twill; repeat size 13 x 12.

13. A. With a suitable diagram, explain treble-width plain cloth. (6)
B. Construct a warp-wadded weft backed design on 16 x 16. Also, indicate the draft for it. (10)

(OR)

- C. Construct the design, draft and peg plan for reversible warp-backed cloth using 4-thread twill. (6)
D. Construct a treble cloth on 12 x 12 with 2/2 twill as the face, center, and back weave. (10)

14. A. Explain the classification of pile fabrics. (6)
B. Indicate the corduroy weave. Draw two cross-section diagrams: the first one showing before cutting and the second showing it after cutting the picks. (10)

(OR)

- C. Differentiate between velvet and velveteen. (6)
D. Construct 3 pick and 4 pick reversible terry weaves. Show the interlacement diagrams for both. (10)

15. A. Differentiate between extra-warp and extra weft weaving. (6)
B. Draw neat sketches of the different types of sheds used in leno weaving and explain them. (10)

(OR)

- C. Differentiate between gauze and leno weaves. (6)
D. Take a 10 x 10 motif for an extra warp figure. Show the complete structure on graph paper using 20 ends and 10 picks, maintaining a 1:1 proportion of ground to extra warp. Use plain weave for the ground, and mention its draft. (10)

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Diploma in Handloom & Textile Technology

NOV/DEC-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. Write the objectives of the heat-setting process.
2. State the functions of the carrier in polyester dyeing.
3. Define the role of mild oxidizing agent/s in printing paste & where they essentially used in printing.
4. What are the prerequisite of dyes for the transfer printing?
5. Why is sodium alginate used as a thickener in reactive dye printing?
6. List the type of reactive dyes suitable for printing applications.
7. Give the two examples of permanent mechanical finishes.
8. Enumerate any two principal objectives of textile finishing
9. Write the name two flame retardant agents used for cotton fabric.
10. What is the mechanism of crease formation in cellulosic material?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Provide a brief explanation of the heat-setting process and its impact on the properties of polyester fabric. (6)
B. Explain the Thermosol dyeing method for polyester, including a suitable recipe, process conditions, and a diagram. Also, state the reason for its preference in dyeing polyester/cotton (P/C) blended fabric (10)
- (OR)**
- C. Explain the mechanism of disperse dyeing on polyester fabric. (6)
D. Describe the high-temperature high-pressure (HTHP) dyeing of 100% polyester fabric, including a suitable recipe, process conditions, a neat diagram, and the defects associated with it. (10)

12. A. Distinguish the resist style of printing from the discharge style of printing. (6)
B. Why is screen printing preferred over other methods of printing in industry? Describe the working of the eight-color flat-bed screen printing machine, along with the functions of its various parts (10)

(OR)

- C. List the various types of ingredients (at least six) used in printing paste, along with their examples and roles in printing. (6)
D. Describe the Kalamkari and Batik styles of printing. (10)

13. A. Differentiate between dyes and Pigments. (6)
B. Describe the printing of Cellulosic fabric with reactive dyes, including a suitable recipe, the procedure, the ingredients used, and the methods of color fixation. (10)

(OR)

- C. Differentiate between flash ageing and wet fixation in the context of reactive dye fixation in printing (6)
D. Describe the printing of polyester fabric with disperse dyes, including a suitable recipe, the procedure, the ingredients used, and the methods of color fixation. (10)

14. A. Explain briefly about the Napping, Sueding & Shearing operations. (6)
B. How can cotton fabric be made shrink-resistant? Explain the procedure and mechanism, along with a suitable diagram and the prerequisites for making it shrink-resistant (10)

(OR)

- C. What are the factors affecting the choice of an appropriate finish for a textile material? (6)
D. Describe the calendaring processes used to impart a silk-like and linen-like appearance to cotton fabric. (10)

15. A. Why are cationic softeners preferred over others? (6)
B. Discuss the process, chemistry, Mechanism and affected properties of textile materials in making them water-repellent and waterproof. (10)

(OR)

- C. Differentiate between flame resistant and flame retardency. (6)
D. Explain the process, chemistry and mechanism of Wrinkle Recovery finish on cotton using DMDHU chemicals. What are the disadvantages of DMDHU based chemistry for resin finish and its alternative solution? (10)

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Diploma in Handloom & Textile Technology

NOV/DEC-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. What is meant by random sample?
2. Define the term Sample in textile testing?
3. What do you mean by Relative humidity?
4. What are the standard atmospheric conditions for textile testing laboratory?
5. Define fibre fineness? and what is the importance of it.
6. What is maturity co-efficient of cotton fibre.
7. What is CRL?
8. What do you understand by term CSP.
9. What do you mean by index of irregularity in yarn?
10. Mention the count measuring systems.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Explain the importance of testing on Textiles. (6)
B. Explain the random numbers for yarn sample selection. (10)
- (OR)
- C. Brief the importance of the coefficient of variation and standard error in the sampling process. (6)
D. Explain the zoning technique for fibre sample selection with line diagram. (10)
12. A. Analyse the factors influencing the moisture regain. (6)
B. Explain the wet and dry bulb hygrometer with neat diagram. (10)

(OR)

- C. Explain the relationship between the Moisture Content and Moisture Regain. (6)
- D. Explain the determination of moisture regain properties of cotton fibre using suitable method? (10)
13. A. What is spinnability of Fibres? What are all the basic requirements and properties for a fibre to be spinnable? (6)
- B. Explain in detail the measurement of fibre length and its distribution using Baer sorter. (10)
- (OR)**
- C. How will you estimate the cotton fiber maturity using microscope? (6)
- D. Explain the measurement of fibre length and its distribution using baer sorter. (10)
14. A. Describe the analysis of load – elongation curve. (6)
- B. Examine the working of single yarn strength tester with neat sketch. (10)
- (OR)**
- C. How the stain gauge principle is used in lea strength tester? Analyse with its purpose. (6)
- D. Explain with neat sketch the construction and working principle of a Lea strength tester. (10)
15. A. Detail the method of evaluating yarn evenness using Cut and weigh methods (6)
- B. Explain the determination of yarn count testing from small fabric swatches. (10)
- (OR)**
- C. Discuss the relationship of the following. (6)
- a) Twist and yarn strength b) Twist and fabric properties
- D. With neat sketch, explain the procedure to determine the yarn twist using straightened fibre method. (10)

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NOV/DEC-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : IV

Time:3 Hours

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

Max. Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define the term “Garment”.
2. Write any four examples for seasonal wears.
3. Write the applications of pattern making tools.
4. Define “Anthropometry”.
5. What do you mean by marker efficiency?
6. List out the differences between applications of straight knife and band knife cutting machines.
7. List out any two types of sewing thread packages with suitable diagrams.
8. Write the Classification of stitches.
9. Classify the sewing machine.
10. State any four applications of special purpose sewing machines in garment industry.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Briefly explain the sourcing and planning departments of garment industry. (6)
B. Explain the types of fabrics with different weave structure suitable for men’s formal wear. (10)

(OR)

- C. Briefly explain the status and features of domestic apparel industry in India. (6)
D. With a process flowchart explain the production of any one basic garment. (10)

12. A. Discuss the concept of pattern grading and state the advantages. (6)
B. Briefly explain the influence of anthropometry in taking measurements and pattern making. (10)

(OR)

- C. Define the term “pattern making”; explain the different types of pattern making. (6)
D. With a flowchart explain the sequence of taking body measurements; write the importance of size chart. (10)

13. A. Write the objectives of cutting and briefly explain the types of cutting machines. (6)
- B. Briefly explain common defects in spreading, cutting and their remedies. (10)
- (OR)**
- C. Define the term “spreading”; explain the types of spreading. (6)
- D. Write the importance of computerized cutting machine, state the advantages and disadvantages. (10)
14. A. Define the term “seams”; write the classification of seams. (6)
- B. Briefly explain the importance and functions of trims and accessories in garment industry. (10)
- (OR)**
- C. Write a detailed note on sewing thread. (6)
- D. Explain the following accessories. (10)
- a) Labels b) Interlinings
15. A. Define the term “sewing”; classify the sewing machine and state the applications. (6)
- B. With a neat line diagram explain the basic parts of sewing machine. (10)
- (OR)**
- C. Write the importance of specialized sewing machines and their applications in garment industry. (6)
- D. Explain the following. (10)
- a) Different types of sewing machine beds
- b) Sewing needles.

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Diploma in Handloom & Textile Technology

NOV/DEC-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. Differentiate between the woven and nonwoven fabrics.
2. Mention any four fibre properties influencing on the nonwoven fabric production.
3. Classify the nonwoven web preparation based on staple fibre.
4. Mention the different types of web laying methods.
5. Which kind of bonding method of nonwoven fabric is suitable for geotextile application? Justify it
6. Classify the mechanical bonding process of nonwovens.
7. Which kind of fibres suitable for polymer laid web preparation?
8. What are the polymer properties influencing on the thermal bonding process?
9. Enlist any four examples of mechanical finishing used in nonwoven fabrics.
10. What are the chemicals used in flame retardant finishing of nonwovens?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Classify the different methods of nonwoven fabric production with flow chart. (6)
B. Explain in detail about the application of nonwovens used in various fields with examples. (10)

(OR)

- C. What are the stages available in fiber preparation of nonwoven fabrics? and explain it. (6)
D. Suggest the fibre properties and their characteristic influence on the nonwoven fabrics, (10)

12. A. Summarize about the web formation methods. (6)
B. Explain about the dry laid web formation methods with a neat sketch. (10)

(OR)

- C. What are the parameters influencing on the web characteristics? (6)
D. Describe about the wet- laid web formation method with a neat sketch. (10)

13. A. What are the factors influencing on the needle punching process? (6)
B. Explain in detail about the needle punching nonwoven manufacturing process with a neat diagram. (10)

(OR)

- C. Discuss the various parameters influencing on chemical bonding process. (6)
D. Describe about the various methods of thermal bonding process with suitable diagrams. (10)

14. A. Enlist the applications of spunbonded nonwoven fabrics. (6)
B. Elucidate the manufacturing process of spun bonded nonwoven fabrics with a neat sketch. (10)

(OR)

- C. Suggest the various factors control the quality of meltblown fabrics. (6)
D. Describe the production of meltblown nonwoven fabrics with suitable diagram. (10)

15. A. Write short notes on the following finishes used for nonwoven fabrics. (6)
a. Antimicrobial finishes.
b. Flame retardant finishes.
B. Explain the different types mechanical finishing applied for nonwoven fabrics with suitable sketches. (10)

(OR)

- C. Discuss the various category of testing based on the characteristics of nonwovens. (6)
D. Summarize about the various test to be conducted in medical and geotextile application of nonwoven fabrics. (10)
