

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

NOV/DEC-2024 SEMESTER EXAMINATION

(Regulation-2021)

Semester : 04

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 . “Pirn winding is an essential for weft preparatory process in shuttle loom weaving”. Justify the statement.
- 2 . List the causes for Ribboning defect in the winding process.
- 3 . What are the factors affect the warping efficiency?
- 4 . The total no of ends in a sectional warping is 2900 ends. Calculate the number of sections to be made, if the capacity of creel is 500 bobbins.
- 5 . Enlist the limitations of tappet and dobby shedding mechanisms.
- 6 . Mention the different types of reversing motions used in power looms.
- 7 . Classify the negative let – off motions.
- 8 . What is sley eccentricity?
- 9 . List out the types of feelers used in pirn changing mechanism.
- 10 . What is 'pick-at-will' motion?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Classify the mechanical slub catchers along with yarn diameter settings for combed and carded yarn. (6)
B. Describe the passage of material in weft winding machine with neat sketch. (10)
- (OR)**
- C. With suitable examples, discuss about various faults in wound package and their causes and remedies. (6)
D. Explain the concepts in capacitance and photo - electric yarn clearers in winding machines with suitable sketch. (10)
12. A. Calculate the length of warp that can be produced per day of 8 hours on modern high speed warping machine, if the warping speed is 650 yards per minute, the overall efficiency is 85%. (6)

- B. What are the objectives of sectional warping? Describe the working procedure of high speed sectional warping machine with a neat sketch (10)

(OR)

- C. A warp containing 2200 ends of 42^s yarn is sized to be 10%. If the sized warp weight is 120 lbs. Calculate the length of the sized warp and the total length of sized yarn. (6)
- D. With a neat material passage diagram, describe the various section and working of a multi cylinder sizing machine. (10)

13. A. Classify and explain the different motions in power loom weaving. (6)
- B. Brief the advantages and limitations of various types of picking mechanism and suggest a highly productive one for producing light weight cotton fabric. (10)

(OR)

- C. Differentiate late shedding and early shedding with timing diagram. (6)
- D. Demonstrate the working principle and mechanism of climax dobby with diagram. (10)

14. A. Calculate the sley eccentricity using following particulars Length of the crank arm CD = 12 inches; Length of crank ED = 3 inches (6)
- B. Describe the five 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. Explain the working principle of loose reed warp protection motion with a neat sketch (10)

15. A. Differentiate cop change and shuttle change mechanisms. (6)
- B. With neat sketches describe the working principles of any one type of multiple drop box motion. (10)

(OR)

- C. Construct different sections lay- out for a power loom shed. (6)
- D. Demonstrate the working principle and limitations of mechanical warp stop motions with a neat sketch. (10)

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Diploma in Handloom & Textile Technology

NOV/DEC-2024 SEMESTER EXAMINATION

(Regulation-2021)

Semester : 04

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 is the special effect produced in the Bedford cord fabric?
2. When a welt is called as fastback welt?
3. How many shuttles are required for weaving double width plain cloth?
4. How the stitching is carried out in the center stitched double cloth?
5. Draw the thread interlacement diagram for the treble width cloth.
6. When do u call a backed fabric as reversible?
7. Explain the principle behind face to face weaving.
8. Differentiate between warp pile and weft pile structure.
9. Enlist the types of sheds formed in leno weaving.
10. Single cloth is reversible. Justify

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Differentiate between Bedford cord and welts. (6)
B. Draw the design, draft and denting order for plain face Bedford cord on 12 ends and 4 picks. (10)

(OR)

- C. What is pique and explain how it differs from welt? (6)
D. Construct crepon Bedford cord weave on 28 ends and 16 picks. (10)
12. A. Enlist the different types of double cloth with suitable illustrations. (6)
B. Construct self-stitched double cloth using (10)
Face weave: 4/4 twill
Back weave : 2/2 twill
Mention the type of stitching used

(OR)

- C. Differentiate between double width cloth and tubular cloth (6)
 - D. Construct thread interchanging double cloth for the formation of vertical Stripe
Face and back weave –plain weave (10)
13. A. With suitable diagram explain treble width plain cloth (6)
- B. Construct treble cloth with suitable stitching by taking 2/2 twill for face, center and back (10)

(OR)

- C. Construct the design, draft and pegplan for reversible warp backed cloth using 4 thread twill (6)
 - D. Construct the design, draft and pegplan for warp wadded weft backed cloth using 4/1 twill for face and 1/4 for back. (10)
14. A. Explain the classification of pile fabrics (6)
- B. Construct the design, and thread interlacement diagram for 4 pick, 5 pick and 6 pick terry produced on face side only. (10)

(OR)

- C. Explain the terry formation mechanism and draw the graphical representation of 3 pick terry (6)
 - D. Draw the design, draft and pegplan for the following twill back velveteen. (10)
Pile weave having 5 end regular sateen and constructed on a repeat size of 10×12 .the ratio of ground to pile is 1:5.
15. A. Differentiate between extra warp and extra weft design. (6)
- B. Draw the neat diagram showing the formation of open shed and crossed shed in leno weaving. (10)

(OR)

- C. Enlist the factors influencing the selection of appropriate count of graph paper (6)
- D. Take 12×12 design and indicate its complete structure of extra warp with 1:1 order in 24×12 (10)

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Diploma in Handloom & Textile Technology

NOV/DEC-2024 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 the objective of heat setting in polyester pretreatment?
2. Mention any two dyeing defects found in polyester dyeing.
3. What is the main function of a thickener in a printing paste?
4. Mention two advantages of screen printing.
5. What is the role of a binder in pigment printing on cotton?
6. Write the fixation method for printing of cotton with reactive dyes.
7. What is the main objective of textile finishing?
8. What is the main function of the raising or napping process in textile finishing?
9. How does a stiffening finish affect a fabric's properties?
10. What is the primary benefit of soil release finishes?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Describe the scouring and sodium chlorite bleaching process of polyester. (6)
B. Explain in detail the carrier dyeing of polyester with disperse dyes, covering the mechanism, recipe, and process conditions. (10)
(OR)
C. Describe the H.T.H.P. dyeing process, including its recipe and process conditions. (6)
D. Explain the Thermosol dyeing method for polyester, detailing the recipe, process conditions with neat diagram and how it differs from other dyeing methods. Discuss the advantages. (10)
12. A. Describe the main differences between dyeing and printing in textiles. (6)
B. Explain the Direct, Resist, and Discharge printing styles. (10)

(OR)

- C. Discuss the process of transfer printing and explain its advantages and disadvantages. (6)
 - D. Discuss in detail the ingredients of a printing paste, describing their functions. (10)
13. A. Describe the recipe and procedure for printing cotton with direct dyes in the direct style. (6)
- B. Describe the pigment printing on cotton with its recipes, after treatment and procedures. (10)

(OR)

- C. Discuss the recipe and procedure for printing silk with acid dyes. (6)
 - D. Explain the entire process of printing cotton with reactive dyes in the direct style, including the recipe, procedure, fixation, and after-treatment steps. Discuss the advantages and limitations of using reactive dyes for cotton printing. (10)
14. A. Provide an in-depth explanation of the sueding process, including the machinery used, procedure, and the effects it has on fabric hand and texture. (6)
- B. Describe the various process of calendaring in textile finishing with neat diagrams. What effects does it have on the fabric? (10)

(OR)

- C. Describe the shearing process in textile finishing and explain its importance in fabric preparation. (6)
 - D. Provide a detailed explanation with neat diagram of the sanforizing process, including the machinery involved, steps in the process, and how it affects the dimensional stability of fabrics. (10)
15. A. Explain the process and purpose of wrinkle-resist finishing in textiles. What are its advantages and disadvantages? (6)
- B. Describe the soil repellency and soil release finishes, explaining how they are applied, the chemicals involved, and their effects on fabric maintenance. Compare their uses in different types of textiles. (10)

(OR)

- C. Discuss the chemical softening process for textiles, including the types of chemicals used and their effects on fabric properties. (6)
- D. Explain flame-retardant and flame-resistant finishes in detail, including the chemicals and processes used. Discuss how these finishes contribute to fabric safety. (10)

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Diploma in Handloom & Textile Technology

NOV/DEC-2024 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. Give the names of two techniques for fibre sampling.
2. Define the term Sample in textile testing.
3. What are the standard atmospheric conditions for textile testing laboratory?
4. Define the term moisture content.
5. State the importance of fibre fineness.
6. What is maturity co-efficient of cotton fibre.
7. What is CRL in textile testing?
8. What do you understand by term CSP.
9. Write the name of terms to express the yarn irregularity.
10. List any two methods of yarn twist measurement.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Explain random and biased sampling. (6)
B. Explain the random numbers for yarn sample selection. (10)
(OR)
C. Explain the role of textile testing in quality assessment with example. (6)
D. Explain the zoning technique for fibre sample selection with line diagram. (10)
12. A. Write the importance of standard testing atmosphere while testing of textile materials. (6)
B. Explain the wet and dry bulb hygrometer with neat diagram. (10)
(OR)
C. Briefly explain the factors affecting the moisture regain of textile material. (6)

- D. Explain the determination of moisture regain properties of cotton fibre using suitable method. (10)
13. A. How will you estimate the cotton fibre maturity using microscope? (6)
- B. Explain fibre fineness measurement using any fibre fineness tester with neat diagram. (10)
- (OR)**
- C. State the influence of fibre fineness on spinnability. (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. Explain the working principal of lea strength tester with neat sketch. (10)
- (OR)**
- C. Explain the mechanism of CRL, CRE and CRT principles of tensile strength. (6)
- D. Explain the fibre strength measurement by using stelometer. (10)
15. A. Explain various functions of twist in yarn structure. (6)
- B. Explain the determination of yarn count testing from small fabric swatches. (10)
- (OR)**
- C. How yarn evenness is important for product quality and process performance. (6)
- D. With neat sketch, explain the procedure to determine the yarn twist using straightened fibre method. (10)

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NOV/DEC-2024 SEMESTER EXAMINATION

(Regulation-2021)

Semester : IV

Time:3 Hours

Course Code & Title : **HTPE 202 Garment Manufacturing Technology**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Classify the garment based on the season that is used.
2. What are the key considerations for categorizing garments by gender and age?
3. State the principles of pattern grading.
4. What is anthropometry, and why is it crucial in garment construction?
5. Mention the factors influencing the marker efficiency.
6. Report the disadvantages of the round knife cutting machine.
7. Identify three common seam types and their uses.
8. Classify the different stitch types according to the federal standards.
9. Name the main objectives of sewing needles.
10. List the functions of take-up lever in the sewing machine.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Enlist the different ways the garments are classified in the apparel industry. (6)
B. Explain in detail, how style, shape, and length influence garment design and production in the apparel industry. (10)
- (OR)
- C. What factors influence the selection of fabric types in garment manufacturing? (6)
D. Discuss in detail the various departments typically found in the garment industry and their functions. (10)
12. A. Describe the principles of pattern drafting with examples. (6)

- B. Explain the 8-head theory and its significance in clothing design. (10)
- (OR)**
- C. Discuss in detail the various pattern-making tools and their functions with neat sketches. (6)
- D. Illustrate and mention various vertical and horizontal body measurements and their measurement-taking methods. (10)
13. A. Elaborate the requirements of spreading process. (6)
- B. Outline the working of straight knife cutting machine with neat sketch (10)
- (OR)**
- C. Enlist the common cutting defects and their causes. (6)
- D. Enumerate the working mechanism of band knife cutting machine. (10)
14. A. Classify the different types of sewing thread based on their constructions (6)
- B. Discuss in detail the various parts of sewing machine with neat sketch. (10)
- (OR)**
- C. Write a short note on different packaging types used in sewing thread. (6)
- D. Illustrate and explain the seam types under class 7 with their applications (10)
15. A. Sketch the thread passage diagram of a single needle lock stitch machine. (6)
- B. Discuss in detail the working of overlock machine with neat gearing. (10)
- (OR)**
- C. Classify the sewing machine based on their bed types with example. (6)
- D. Evaluate the functions of different needle based on their point types. (10)

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NOV/DEC-2024 SEMESTER EXAMINATION

(Regulation-2021)

Semester : 04

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. List any two unique character of nonwoven that would not be achieved in woven / knit fabric.
2. Name the two types of polymer-laid nonwoven manufacturing process.
3. What are the techniques used for production of web from the short staple fiber meant for nonwoven production?
4. Write the advantageous of parallel laid technique.
5. Write the name of the different stitch bonding machines.
6. List the advantages of thermal bonding technique.
7. Give any four unique advantageous of melt blown nonwoven.
8. What are the important process parameter associated with the spun bond nonwoven production technique.
9. State any four chemical finishes suitable for nonwoven
10. How can the dimensional stability of the nonwoven are improved?

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Give a detailed note on various process involved in the manufacturing of nonwoven. (6)
B. Explain the classification of nonwoven on various aspects. (10)
- (OR)**
- C. Write short notes on application of nonwoven in the area of filtration. (6)
 - D. Explain the fiber preparation techniques to be followed for the production of cotton needle-punched nonwoven. (10)

12. A. Compare parallel-laid and cross-laid techniques. (6)
B. With neat diagram explain the method of production of web from anyone dry laid technique. (10)

(OR)

- C. Give a detailed note on perpendicular web layering technique. (6)
D. Explain the working principle of cross-lapper with schematic diagram. (10)
13. A. Draw a diagram of needle used in needle-punching process and indicate the important parts. (6)
B. With neat diagram, explain the principle of working of water jet (spun lace) based web bonding process. (10)

(OR)

- C. Write short notes on thermal bonding technique. (6)
D. With a suitable example of binder polymer, explain the chemical bonding technique for the production of nonwoven. (10)
14. A. Write short note on various process parameters considered in melt blown process. (6)
B. With neat diagram, explain the process of nonwoven manufacturing using spun bond technique. (10)

(OR)

- C. Compare melt blown and spun bond nonwoven techniques. (6)
D. With neat diagram, explain the process of nonwoven manufacturing using melt blown technique. (10)
15. A. Discuss the various methods of application of chemical on nonwoven during finishing process. (6)
B. Explain the various test required to be conducted on the raw material (10)

(OR)

- C. Write any two applications of nonwoven and four essential tests required for ensuring the suitability of nonwoven for those applications. (6)
D. Elaborate the tests used to evaluate the quality of nonwoven for medical applications. (10)
