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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

April/ May - 2026 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. Explain the importance of splicing in modern winding.
3. What are the factors affecting size pick up?
4. Write the formula to calculate the number of sections required to be made in sectional warping machine.
5. Enlist the various auxiliary motions in weaving process.
6. Mention the different types of reversing motions used in power loom.
7. Differentiate loose reed and fast reed motions.
8. What is sley eccentricity?
9. What is the purpose of employing drop box motion in power loom?
10. What is 'pick-at-will' motion?

PART-B **(**(6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Differentiate splicing and knotting. (6)

    B. Explain the working principle of electronic yarn clearers with suitable sketches. (10)

(OR)

    C. With suitable examples, discuss about various faults in wound package and their causes and remedies. (6)

    D. Calculate the number of drums required to wind 900 pounds of cotton yarn of 32 Ne in 8 hours. The actual rate of winding is 1080 yards per minute. (10)

12. A. A warp containing 2400 ends of 44^S cotton yarn is sized to 10%. If the sized warp weight 120 pounds, calculate the length of sized warp. (6)

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

(OR)

C. 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 610 yards per minute. The overall efficiency is 75% (6)

D. Explain the working principle of a multi-cylinder sizing machine with a neat sketch. (10)

13. A. Classify and explain the different motions in power loom weaving. (6)

B. Explain the working mechanism of climax dobby with suitable diagram. (10)

(OR)

C. Define reversing motions in tappet shedding. (6)

D. Explain the working principle of cone over-pick mechanism with suitable diagram. (10)

14. A. Discuss in brief about the various temples used in weaving process. (6)

B. With a neat sketch explain the working of fast reed warp protection mechanism. (10)

(OR)

C. Explain negative let-off motions. (6)

D. Describe the working principle of seven wheel take up motion with neat sketch. (10)

15. A. Explain about the drop wires used in mechanical warp stop motion. (6)

B. With neat sketches describe the working principle of cop changing mechanisms. (10)

(OR)

C. Construct different sections lay-out for a power loom shed. (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

APRIL/MAY-2026 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. Name the series of ends used in plain faced ordinary Bedford cord structure.
2. Mention the tension difference between two series of ends used in welt structure.
3. Write the objectives of introducing wadding threads in double cloth.
4. Draw the line diagram of a centre warp stitched double cloth.
5. What are the objectives of producing backed cloth?
6. How many ends and picks are required to construct imitation warp backed cloth with 3up 3 down twill base?
7. Define loose pick and fast pick in terry weaving.
8. Differentiate velvet and velveteen.
9. Write the function of easer bar in cross weaving.
10. What is the appropriate count of graph paper used for developing graph to weave a figured fabric of 80 EPI and 60 PPI using 240 hooks jacquard?

PART-B ((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Construct the design & draft of a 2/1 twill face bed ford cord weave. (6)

    B. Construct the design, draft & interlacement diagram of a wadded plain face Bedford cord by alternate pick method repeating on 16x 4, taking 2 wadding threads in each cord. (10)

(OR)

    C. Differentiate between welt and pique structure. (6)

    D. Construct the design, draft & interlacement diagram of alternate loose and fast back welt structure repeating on (6 x 12), keeping the 3rd, 4th, 7th and 8th picks as wadding picks in the repeat. (10)

12. A. Construct the weave repeat of double width plain cloth & two ply plain cloth. (6)

    B. Construct a self-stitched double cloth design by taking face weave as 4/4 twill weave & back weave as 3/5 twill weave using face to back stitching method. (10)

(OR)

C. Differentiate thread interchanging double cloth and cloth interchanging double cloth. (6)

D. Construct a centre weft stitched double cloth design 12x13 by taking 3/3 twill weave as face & back weave. (10)

13. A. Construct treble width plain cloth in 6x6 and also indicate the picking order. (6)

B. Construct a weft wadded warp backed cloth by taking 4/4 twill on face & back weave in 16x16 (10)

(OR)

C. Construct the design, draft and peg plan for reversible weft backed cloth using 5 thread twill. (6)

D. Construct a treble cloth design by using 3/3 twill weave on face, centre & back weave. (10)

14. A. Write the mechanism of warp pile produced on face to face principle. (6)

B. Construct the design and interlacement diagram of the followings (10)

i) 6 pick terry pile produced on both sides

ii) 4 pick terry pile produced on face side only

(OR)

C. Write the mechanism of terry pile formation. (6)

D. Construct one repeat of the following weave. (10)

i) Plain back velveteen by taking pile weave 1 up3 down twill.

ii)Fast back velvet taking ground weave 2&1 warp rib and picks to wire ratio as 2: 1.

15. A. Draw the interlacing diagram and lifting plan of gauze structure for straight draft leno arrangement. (6)

B. Draw the neat diagram showing the formation of open and crossed shed in cross weaving with their lifting plan. (10)

(OR)

C. List the different stages of preparing figured graph ready for punching from a given motif. (6)

D. Taking a motif of 12 X 12 for extra weft figure, show the complete structure on the graph paper in 12 ends & 24 picks, keeping the proportion of ground to extra weft as 1: 1 & weave for ground as plain. (10)

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Diploma in Handloom & Textile Technology

April/ May - 2026 Semester Examination

(Regulation-2021)

Semester : **IV** Time:3 Hours

Course Code & Title : **HTPC211 Chemical Processing of Textiles-II** Max. Marks: 100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. Write the flow process chart for the polyester pretreatment.
2. What is reduction clearing? Why it is done?
3. State the role of reducing agents in printing. Give example.
4. Define Ageing.
5. Mention the methods of fixation involved in reactive dye printing.
6. Write the recipe for printing of silk with acid dye.
7. State the objectives of finishing process.
8. Give the application of Raising.
9. Difference between Water proof and water repellent finish.
10. Name any two flame retardants.

PART-B **(**(6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Describe the process of bleaching polyester with Sodium chlorite. (6)

    B. Discuss on the methods of heat setting process. (10)

(OR)

    C. Highlight on major dyeing defects and their remedies. (6)

    D. Explain the thermosol method of dyeing polyester fabrics. (10)

12. A. Discuss on the role of any 6 print paste ingredients used in printing. (6)

    B. Explain the process of working of rotary screen printing machine with a neat line sketch. (10)

(OR)

C. Summarize on kalamkari style of printing. (6)

D. Briefly discuss about Tie & Dye and Batik styles of printing. (10)

13. A. Discuss on the process of printing of cotton using pigments. (6)

B. Explain the process of printing cotton using reactive dyes by flash ageing and silicate padding methods. (10)

(OR)

C. Describe the method of printing of silk with acid dyes. (6)

D. Discuss on the process of printing polyester with disperse dyes. (10)

14. A. Define finishing and briefly discuss on the factors affecting selection of finishes. (6)

B. Classify finishing process with example for each class. (10)

(OR)

C. Describe the process of friction and swizzing calendaring process. (6)

D. Explain the process of Sanforising with neat sketch. (10)

15. A. Give the recipe and application of softener finish for cotton. (6)

B. Describe the process of application of Wash and wear and durable press finish on cotton fabrics. (10)

(OR)

C. Discuss on the theories of flame retardancy. (6)

D. State the importance of anti-static finish for textiles and give its recipe and application process. (10)

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April/ May - 2026 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 meany by the term "Biased" in selection of sample.
2. Under what circumstances the squaring technique is used for selection of sample from the bulk.
3. What is absolute humidity?
4. Write the formula relating moisture regain and moisture content.
5. What is meant by fibre quality index?
6. Define maturity ratio and maturity index of cotton fibre.
7. What is CRT mode in tensile testing?
8. Define the term CSP and mention its merits.
9. What is twist factor? Write its formula.
10. List the methods of measuring yarn count.

PART-B **(**(6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Differentiate random and biased samples in textile testing. (6)

    B. Explain in detail the random numbers method for yarn sampling with suitable example. (10)

(OR)

    C. Describe the importance of quality assessment in textile industry. (6)

    D. Explain the zoning technique for fibre sample selection with neat line diagram. (10)

12. A. Calculate the corrected yarn count in standard regain value if the actual count is 40s Ne and moisture content is 10% for cotton yarn (Standard regain = 8.5%). (6)

B. Describe the construction and working principle of wet and dry bulb hygrometer with neat diagram. (10)

(OR)

C. Explain the effect of moisture on fibre properties. (6)

D. Describe in detail the determination of moisture regain of cotton fibre using moisture testing oven method. (10)

13. A. What are the factors affecting the spinnability of fibres? (6)

B. Explain in detail the measurement of fibre fineness its importance in yarn manufacture and its measurements techniques? (10)

(OR)

C. Brief the measurement of cotton fibre maturity using air flow method. (6)

D. Explain the measurement of fibre length, length uniformity and its measuring techniques?. (10)

14. A. Explain the terms: Breaking load, Breaking extension, Breaking stress and Breaking strain with reference to tensile testing (6)

B. Describe the construction and working principle of Stelometer for fibre strength measurement with neat sketch. (10)

(OR)

C. Differentiate between CRT, CRE and CRL modes of tensile testing. (6)

D. Explain with neat sketch the construction and working principle of Scott IP Tester (Inclined plane principle) for single yarn strength testing. (10)

15. A. Explain the relationship between yarn twist and yarn strength. (6)

B. Describe the procedure for determination of yarn twist using twist contraction method with neat sketch. (10)

(OR)

C. Explain the electronic method for determination of yarn mass evenness. (6)

D. Explain the yarn fault classification with suitable diagrams. (10)

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Diploma in Handloom & Textile Technology

April/ May - 2026 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. Write the classification of garments, based on season and events.
2. Write the various departments in the garment industry.
3. Define the term pattern grading.
4. Define Anthropometry.
5. Write the objective of fabric spreading.
6. Write the common defects occurred during fabric cutting.
7. Write any four defects in stitching and seams.
8. Write the importance of interlinings in garment construction.
9. Give simple classification of sewing machines used in woven garment industries.
10. Draw a simple diagram of sewing needle and mention its important parts.

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 women's wear. (10)

(OR)

    C. Briefly explain the status and features of apparel industry in India. (6)

    D. With a process flow chart explain the activities involved in production of any one basic garment. (10)

12. A. Briefly explain the concept of 8 head theory. (6)

    B. Explain in detail about the various pattern making tools used with diagrams. (10)

(OR)

C. Briefly explain the concept of basic pattern making. (6)

D. Explain in detail about the concepts of pattern grading, with suitable diagrammatic examples. (10)

13. A. Briefly explain the importance of marker planning and marker efficiency. (6)

B. Explain the construction and working of straight knife cutting machine with diagram. (10)

(OR)

C. Write the advantages and disadvantages of computerized cutting machine. (6)

D. Explain in detail about the common defects in spreading, cutting and their remedies. (10)

14. A. Explain any two stitch types with diagrams. (6)

B. Explain the importance and functions of trims and accessories in garment industry. (10)

(OR)

C. Briefly explain the basic parts of sewing machine and their functions. (6)

D. Explain in detail any five seam types with diagrams. (10)

15. A. Write the working principle of overlock sewing machine with diagram. (6)

B. Explain the various sewing machine bed types with diagrams and their applications. (10)

(OR)

C. Briefly explain the types of sewing needles and their applications. (6)

D. Explain the working principle of bartack machine and embroidery sewing machine with diagrams. (10)

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April/ May - 2026 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 nonwoven.
2. differentiate between nonwoven and woven fabrics.
3. What is meant by wet laid?
4. Mention the different types of web laying methods.
5. List any two fibres that are used for spun bonding methods.
6. What is thermal bonding technique?
7. List the suitable materials used for polymer laid web preparation.
8. What are the properties that influencing the chemical bonding process?
9. Enlist any four examples of finishing used in nonwoven fabrics.
10. Testing procedures used for mechanical finished nonwovens.

PART-B **(**(6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Explain the fibre preparation for different nonwoven manufacturing process. (6)

    B. Elaborate the current applications of nonwovens in all the sectors. Give examples. (10)

(OR)

    C. What are all the fibre properties that influences on the non-woven fabrics. (6)

    D. List the different types of nonwoven manufacturing process. Explain. (10)

12. A. Discuss in detail the web formation methods (6)

    B. With neat sketch explain the web layering techniques in dry laid web formation methods. (10)

(OR)

C. List the influencing parameters on web laying over fabric characteristics. (6)

D. How the wet- laid web is formed? Explain with a neat sketch. (10)

13. A. What are the factors influencing on the needle punching process? (6)

B. Elaborate the needle punching technique with neat sketches. (10)

(OR)

C. Explain the different chemicals and binders used for chemical bonding of nonwovens. (6)

D. Elaborate on thermal bonding process with suitable diagrams and list few raw materials that are used for thermal bonding nonwoven fabrics. (10)

14. A. Explain the manufacturing of spunbonded nonwoven fabrics. (6)

B. Explain in detail polymer extrusion techniques suitable for nonwoven manufacturing. (10)

(OR)

C. Explain how the melt blown fabrics are manufactured. (6)

D. Discuss on the effect of process parameters of fibre manufacturing influences over nonwoven fabrics manufacturing. (10)

15. A. How the anti-bacterial finish is applied on nonwoven materials. Discuss. (6)

B. With suitable sketches discuss in the mechanical finishing of nonwoven fabrics. (10)

(OR)

C. Elaborate on the chemical finishing of nonwoven fabrics. (6)

D. Discuss in detail the various quality testing to be conducted for medical nonwoven applications. (10)

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