

Registration Number

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INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

Varanasi

Post Diploma in Textile Processing

NOV/DEC-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : I

Time:3 Hours

Course Code &Title : **PDTP101 Fibre science**

Maximum Marks:100

PART-A(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Classify Fibres.
2. Distinguish branch and linear polymers.
3. Identify the fibers that produced from dry and melt spinning.
4. Differentiate between false twist and air jet texturisation.
5. Draw the cross section view of cotton fibre.
6. Recognize the physical properties of wool fibre.
7. Mention the properties of cellulose acetate and their applications.
8. Indicate the importance of heat setting process of fibre.
9. Point out the monomers required for manufacturing of acrylic fibre.
10. List the properties of polyethylene fibre.

PART-B((6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Emphasize the significant essential characteristics required for fibre formation. (6)
- B. Specify the following terms: Homo polymer, Co-Polymer, Crystallinity, and amorphous region. (10)

(OR)

- C. Recognize the importance of glass transition and melting temperature of polymers. (6)
- D. Describe the mechanism of addition and condensation polymerisation with suitable examples. (10)

12. A. Compare the working principles of dry and wet spinning. (6)
B. Discuss the importance of the following equipments used in the melt spinning. (i) extruders (ii) manifolds (iii) spin-pack (iv) quenching (10)

(OR)

- C. Explain application of spin finish on synthetic fibres. (6)
D. Describe the different types of texturisation processes with examples. (10)

13. A. Illustrate the morphological structure of wool fibre. (6)
B. Investigate the mechanism on formation of hydro and oxy cellulose. (10)

(OR)

- C. Analyse the importance of isoelectric points in protein fibres. (6)
D. Compare the physical and chemical properties of cotton and silk fibre. (10)

14. A. List the physical and chemical properties of viscose and polyester fibre. (6)
B. With necessary sketch, explain the manufacturing sequence of viscose rayon. (10)

(OR)

- C. Analyse the various methods of heat setting process on synthetic filaments. (6)
D. Explain in detail about the various manufacturing methods of polyester fibre. (10)

15. A. List the physical and chemical properties of polyamide fibres. (6)
B. Illustrate the mechanism and manufacturing of nylon 6 fibre. (10)

(OR)

- C. Reveal the physical and chemical properties of PAN fibres. (6)
D. Explain in detail about the monomers used and manufacturing methods of polyethylene fibre. (10)

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NOV/DEC-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : I

Time:3 Hours

Course Code & Title : **PDTP102 Technology of Preparatory
Processing of Textiles**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define the term Cropping in textile processing.
2. What do you understand by solvent scouring?
3. Write the recipe for alkali degumming of silk.
4. Write a short note on carbonizing of wool fibre.
5. Define the term Potting process.
6. Write the recipe for Scouring process of polyester fabric.
7. Write the differences between Roller singeing machine and Gas singeing machine.
8. What are the advantages of J-box machine?
9. What are the uses of surfactants in textile wet processing?
10. Write the defects occur in Scouring process.

PART-B

((6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Explain the chemical aspects and morphological structure of raw cotton. (6)
B. Explain the types of De-sizing processes for cotton fabric. (10)

(OR)

C. Explain the need for preparation of grey fabric for Dyeing process. (6)
D. Explain the process of Hypochlorite bleaching. (10)
12. A. Explain the chemical composition of wool fibre. (6)
B. Explain the scouring process of wool fibre with a neat sketch. (10)

(OR)

C. Explain the types of Milling process of woollen fabric. (6)
D. Explain the methods of Degumming of Silk fabric. (10)

13. A. Explain the need for preparatory processes for synthetic fibres. (6)
B. Explain the process of Decatising for woolen fabric with a neat sketch. (10)
- (OR)**
- C. Explain the scouring process for acrylic fabric. (6)
D. Explain the bleaching process for wool fabric. (10)
14. A. Explain the preparatory process sequences for different cotton fabrics to be dyed in pale and medium shade. (6)
B. Explain the construction and working of Gas singeing machine. (10)
- (OR)**
- C. Explain the working principle of Hydro extractor. (6)
D. Explain the construction and working of Winch dyeing machine. (10)
15. A. Explain the functions of auxiliaries used in Hydrogen peroxide bleaching process. (6)
B. Explain the construction and working of continuous bleaching ranges. (10)
- (OR)**
- C. Explain the defects and damages caused in bleaching process. (6)
D. Explain the construction and working of Garment washing machine. (10)

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Semester : I

Time:3 Hours

Course Code & Title : **PDTP103 Technology of Dyeing -1**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Write the importance of affinity in dyeing.
2. Write the purpose of soaping after of dyeing.
3. How do you assess the availability of optimum quantity of hydros in vatting?
4. Draw the chemical structure of an acid dye.
5. Define metal complex dyes and state their properties.
6. Write short note on padding mangle dyeing machine with neat sketch.
7. Why are direct dyes also called as substantive dyes? List of any four properties of direct dyes.
8. What is percentage of shade & Percentage of expression?
9. Write the drawbacks of Hydrolysis of Reactive dyes.
10. Write down steps involved in dyeing cotton material with Azoic dyes.

PART-B

((6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Differentiate between dyes and pigments. (6)
B. Explain about what criteria for selection of dyes for different textile fibres? (10)
(OR)
C. Differentiate between auxochrome and chromophore with examples. (6)
D. Explain classification of dyes with respect of their application on textile fibres (10)
12. A. Explain the effect of M:L ratio, electrolyte and temperature during the dyeing with direct dyes. (6)
B. Explain the chemistry of dyeing cotton material with azoic dyes. (10)

(OR)

- C. Write down the chemical reaction in Sulphur dyeing. (6)
- D. Explain the mechanism of direct dyeing and the application of direct dyes to cotton material. (10)

- 13. A. Briefly explain classify vat dyes in accordance to their chemical constitution. (6)
- B. Explain the process of dyeing with solubilized vat dyes on cotton material. (10)

(OR)

- C. Write down the classification of reactive dyes on basis of the reactive system (6)
- D. Explain in detail the application of vat dyes on cotton material. (10)

- 14. A. Define acid dyes and state their properties. (6)
- B. Explain the mechanism of acid dyes on wool fabrics along with its dyeing recipe. (10)

(OR)

- C. Define metal complex dyes and their properties. (6)
- D. Explain application of 1:1 metal complex dye on wool fabrics along with its dyeing recipe. (10)

- 15. A. Write short notes on jigger dyeing machine with neat sketch (6)
- B. Explain cabinet hank dyeing machine with neat sketch. (10)

(OR)

- C. Write short notes on Banned dyes. (6)
- D. Identify a suitable machine for dyeing of soft quality of fabrics. Explain its working principal with neat diagram. (10)

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Semester : I

Time:3 Hours

Course Code & Title : **PDTP104 Introduction to Textile
Manufacture**

Maximum Marks: 100

PART-A

(10×2=20 Marks)

Answer all the questions within two to three sentences

1. Compare staple and filament yarn.
2. Define nonwoven fabric.
3. List the objectives of combing process.
4. Differentiate woolen and worsted yarn.
5. Covert 50 tex and 25 denier into English count.
6. Enlist the objectives of winding process.
7. Draw a design, draft and peg plan of 2/1 twill weave.
8. Differentiate tuck and miss stiches in knitted fabrics.
9. Enlist the advantages and limitations of power looms.
10. Identify the common defects occurred in knitted fabric structure.

PART-B

((6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Highlight the essential and desirable properties of fibre. (6)
B. Classify the various textile fibres in tree chart based on textile institute recommendations. (10)

(OR)

- C. Compare and contrast the properties of folded and fancy yarns. (6)
D. Indicate the features and properties of woven, knitted and non-woven fabrics. (10)
12. A. Outline the process involved in the production of combed cotton yarn. (6)
B. Explain the working of important machineries involved in the blow rom line. (10)

(OR)

- C. Highlight the importance of reeling and throwing process involved in silk fibre production. (6)
- D. Compare the builder mechanism used in roving and ring frame. (10)
13. A. Highlight the various list of defects and it's causes occurred in yarn manufacturing. (6)
- B. Explain the working principle of high-speed warping machine in detail. (10)
- (OR)**
- C. Discuss in detail about the drawing and denting process. (6)
- D. Enumerate in detail about the size paste ingredients and process parameters requirements of cotton yarn sizing. (10)
14. A. Compare the satin and sateen weave structure and properties. (6)
- B. Draw a brighton honeycomb weave (12*12) with draft and peg plan. (10)
- (OR)**
- C. Explain the working principle of flatbed knitting machine. (6)
- D. Compare the properties of various types of knitted fabric structure. (10)
15. A. Classify the various types of handlooms. (6)
- B. Explain in detail about the working principle of air jet loom. (10)
- (OR)**
- C. Discuss in detail about the passage of warp in power loom. (6)
- D. Calculate the total weight of warp and weft required to produce 200 meters of cloth for given details. The regain of the warp and weft is 8%. (10)
- Count of the warp and weft yarn -15 and 20 Tex
- Ends/ inch- 70; Picks/inch- 60
- Width of the cloth- 60 inches
