Registration Number | | | | | | | |

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY

Salem & Varanasi

Post Diploma in Textile Processing

NOV/DEC-2023 SEMESTER EXAMINATION

(Regulation-2021)

Semester : 01 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 . Differentiate syndotactic and isotactic polymers.

2 . How to identify the order and disorder structure of textile fibres?

3 . Indicate the importance of texturizing treatment that given to the textile fibres.

4 . List out the fibres that produced from melt and wet spinning.

5 . Illustrate the morphological structure of cotton fibre.

6 . What is the iso electric region of wool fibres?

7 . Identify the need of heat setting process for synthetic fibres.

8 . Highlight any two important chemical properties for polyester fibres.

9 . List any two important physical properties of polyamide fibres.

10 . Differentiate acrylic and modacrylic fibres.

PART-B **(**(6+10)×5=80 Marks)

Answer all the questions in detail

11. A. Define the following terminologies that used in fibre industry: Repeat unit, Molecular weight and Intrinsic viscosity. (6)

B. Compare the homo and co-polymer production with suitable examples. (10)

(OR)

C. Classify the natural and synthetic fibres based on textile institute standards. (6)

D. Differentiate the Tg and Tm, and find the importance of both in textile fibre production. (10)

12. A. Indicate the need of dry and wet spinning process in fibre production. (6)

B. Explain the important component functions and working principles of melt spinning with suitable diagram. (10)

(OR)

C. Demonstrate the working principles of draw and air jet texturizing techniques with suitable diagram. (6)

D. Highlight the importance of spin finish process and discuss the various application methods of same in synthetic fibre production. (10)

13. A. Explain the process of formation of hydro and oxy cellulose. (6)

B. Compare the chemical composition and physical properties of cotton and silk fibre. (10)

(OR)

C. Discuss the concept of zwitter ion in protein fibre. (6)

D. Analyse the detail morphological structure of wool and silk fibres with suitable diagram. (10)

14. A. Highlight the acid and alkali resistance of viscose and polyester fibre. (6)

B. Demonstrate the viscose fibre production with suitable flow diagram. (10)

(OR)

C. Compare the two routes of polyester fibre production with detail chemical reactions. (6)

D. Create a table to compare the physical and chemical properties of cellulose acetate and lyocell fibres. (10)

15. A. Highlight the important physical and chemical properties of polyethylene and polypropylene fibre. (6)

B. Analyze the importance of using Ziegler- nata catalyst and process parameters that involved in the polyethylene fibre production. (10)

(OR)

C. Differentiate raw material and important process parameters that involved in the acrylic and modacrylic fibre production. (6)

D. Enumerate in detail about the manufacturing process and physical properties of Nylon 66 fibre. (10)

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Semester : 01 Time:3 Hours

Course Code &Title : **PDTP102 : Technology of Preparatory Processing of Textiles** Maximum Marks:100

PART-A (2×10=20 Marks)

Answer all the questions within two to three sentences

1 What is the objective of stitching in dry preparatory process of textile goods?

2 What is the solvent scouring ?

3 Write the freezing method of scouring wool.

4 What is degumming of silk?

5 Why sodium hypochlorite is not recommended for bleaching of synthetic goods?

6 What is decatising?

7 Write the use of kier machine.

8 Write the preparatory process sequence for white cotton fabric.

9 What is the role of sequestering agent?

10 What is the role of wetting agent?

PART-B (6+10) ×5=80 Marks

Answer all the questions in detail

11. A. Write the composition of raw cotton and repeat unit of cellulose. (6)

B. Explain the process of bleaching cotton by hydrogen peroxide. Also mention the chemical reactions involved in bleaching. (10)

(OR)

C. Compare bleaching powder and sodium hypochlorite bleaching of cotton. (6)

D. Write in brief about the process of desizing, scouring, mercerization and spotting. (10)

12. A. Draw a neat sketch and explain the morphological structure of wool. (6)

B. Explain the milling of woollens with neat diagram of milling machine. (10)

(OR)

C. Explain the different methods of degumming of silk. (6)

D. Describe the emulsion scouring of wool with neat diagram and working of Dolly machine used in scouring of wool. (10)

13. A. What is the need for preparatory treatments for synthetic goods? (6)

B. Explain potting and crabbing treatments with neat diagrams. (10)

(OR)

C. Describe the bleaching of silk with hydrogen peroxide. (6)

D. Write the method of scouring and bleaching of polyester. (10)

14. A. Draw the diagram of J-box. (6)

B. Describe the working of singeing machine with neat diagram. (10)

(OR)

C. Draw the diagram of winch machine. (6)

D. Explain the working of hydro extractor with neat diagram. (10)

15. A. Explain about surfactants, detergents and optical brightners. (6)

B. Describe the working of continuous bleaching range with neat diagram. (10)

(OR)

C. What are the defects occurred in scouring and bleaching. (6)

D. Explain the working of garment washing machine. (10)

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NOV/DEC-2023 SEMESTER EXAMINATION

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Semester : 01 Time:3 Hours

Course Code & Title : **PDTP103 : Technology of Dyeing - I** Maximum Marks: 100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define Auxochrome. Give example.
2. What is Zeta Potential?
3. Name any two Naphthol and bases.
4. Mention the common defects that occur in sulphur dyed materials.
5. Classify vat dyes based on application.
6. What are bi-functional reactive dyes?
7. Draw the amphoteric structure of wool.
8. What are chrome dyes?
9. State the advantages of Jigger dyeing machine.
10. Draw any two padding mangles.

PART-B **(**(6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Discuss the factors influence in the selection of dyes. (6)

    B. Classify dyes based on their application. (10)

(OR)

    C. Define the terms: Percentage of exhaustion, Material Liquor Ratio and Substantivity. (6)

    D. Explain the theory of dyeing process. (10)

12. A. Write notes on the after treatments of cotton dyed with direct dyes. (6)

    B. Discuss in detail about the process of dyeing of cotton with direct dyes. (10)

(OR)

C. Write notes on the Diazotization process. (6)

D. Explain with recipe and process condition the process of dyeing cotton with sulphur dyes. (10)

13. A. Classify vat dyes based on their chemical constitution. (6)

B. Explain the process of dyeing cotton fabrics with solubilized vat dyes. (10)

(OR)

C. Classify reactive dyes with example for each class. (6)

D. With recipe and process conditions discuss on the process of dyeing cotton fabric with reactive hot brand dyes for medium shade. (10)

14. A. Wool can be dyed using both anionic and cationic dyes. Justify. (6)

B. Explain the process of dyeing wool with metal complex dyes. (10)

(OR)

C. Describe the process of dyeing silk with Acid dyes. (6)

D. Explain on the dyeing of silk with metal complex dyes. (10)

15. A. Write notes on Azo Ban. (6)

B. Summarize on the hazardous chemicals used in the chemical processing and suggest suitable alternatives for the same. (10)

(OR)

C. Classify dyeing machines based on the working principle , process and type of material used with suitable example. (6)

D. Explain the working of cheese dyeing machine with a neat sketch. (10)

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Semester : 01 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. Define the term yarn.
2. What are the important characteristics of non woven fabric?
3. What are the objectives of blowroom process?
4. What is the length of 200 grams of 80^S Nm yarn?
5. Define drawing and denting process in weaving.
6. Draw the design, draft and peg plan of plain weave using skip draft.
7. State any two machines used in knitting process.
8. What are the important characteristics of shuttleless looms.
9. What are the objectives of winding process?
10. Write the difference between handloom and powerloom.

PART-B (6+10)×5=80 Marks

Answer all the questions in detail

11. A. Classify the textile fibre used in textile industries. (6)

    B. Classify various types of fabric and write down the properties of woven and non woven fabric. (10)

(OR)

    C. What is the difference between woven and knitted fabrics? (6)

    D. Explain the classification of various types of yarn and their characteristics with the diagram. (10)

12. A. Draw the flowchart of carded and combed yarn manufacturing process. (6)

    B. Explain the working of step cleaner in blowroom with neat diagram. (10)

(OR)

C. Explain the process of reeling of silk. (6)

D. What are the objectives of comber in spinning? Explain the combing cycle with diagram. (10)

13. A. Discuss the various types of defect and damages in yarn manufacture. (6)

B. What are the objectives of warping process? Explain the working process of sectional warping machine. (10)

(OR)

C. Explain the construction and working process of weft winding machine. (6)

D. What are the objectives of sizing process and discuss the various types of ingredients used in it. (10)

14. A. Draw the design, draft and peg plan of warp and weft rib. (6)

B. Explain the working principle of circular knitting machine with schematic diagram. (10)

(OR)

C. What are the types of knitting? Draw the loop structure of any two knit structure. (6)

D. Draw the design, draft and peg plan of regular and irregular satin and sateen weaves with minimum repeat size. (10)

15. A. What is the weight (in gram) of 3500 meters of cotton yarn whose count is 8.4 tex. (6)

B. Classify various types of handloom and power loom. (10)

(OR)

C. A cotton fabric is woven from 18 tex warp and 21 tex weft. The fabric has 28 ends/cm and 25 picks/cm and the warp and weft crimp percentage are 2.5 and 9.0 respectively. Estimate the areal density. (6)

D. Explain the various types of fabric defects with their causes. (10)

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