Registration Number | | | | | | | | |

INDIAN INSTITUTE OF HANDLOOM TECHNOLOGY
Varanasi
Post Diploma in Textile Processing
NOV/DEC-2025 SEMESTER EXAMINATION
(Regulation-2021)

Semester : **III** Time:3 Hours

Course Code &Title : **PDTP301 Technology Of Printing-II** Maximum Marks:100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. What is meant by the discharge style of printing on textiles?
2. Suggest a reducing chemical generally used for removing azoic dye shades during discharge printing.
3. Why is an acid ingredient included in the discharge paste while printing on silk?
4. List any four merits of using discharge printing on silk fabrics.
5. Identify the dye category most suitable for printing polyester materials.
6. Justify why pigment printing is most widely used in commercial printing.
7. What do you mean by digital textile printing?
8. How does sublimation dyes function in the heat-transfer printing process?
9. What is Batik, and how is the design developed on the fabric?
10. Name two Indian states renowned for producing Bandhani tie-and-dye textiles.

PART-B (6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Explain any one resist printing technique and mention appropriate fabric–dye combinations used for the process. (6)

    B. Discuss the methods of producing white and colored discharge prints on cotton fabric dyed with reactive dyes. (10)

(OR)

    C. Explain the chemistry involved in discharge printing of cotton fabrics. (6)

    D. Describe the process of resist style printing with suitable fabric and dye combinations. (10)

12. A. Analyze the relationship between dye structure and its discharge ability on silk fabrics. (6)

B. Examine the role of metal complex dyes in silk printing, highlighting their application method and performance benefits. (10)

(OR)

C. Evaluate the impact of auxiliaries on shade depth and colour fastness in acid dye printing of silk. (6)

D. Critically discuss how traditional discharge methods on silk can be modernized using advanced machinery or chemicals. (10)

13. A. Describe the role of binders in the fixation of pigments on polyester/cotton blended fabrics. (6)

B. Discuss the economic and technical aspects of using pigment printing versus reactive printing on polyester/cotton fabrics (10)

(OR)

C. Distinguish between direct and discharge styles of textile printing with suitable examples. (6)

D. Discuss the importance of dispersing agents and thickeners in preparing a stable printing paste for disperse dyes. (10)

14. A. Analyze the drawbacks of transfer printing compared to digital printing and suggest future research directions. (6)

B. With neat sketches, describe the working principle of transfer printing machines and their application in textiles. (10)

(OR)

C. With a diagram, explain how digital textile printing handles multi-colour designs and rapid production. (6)

D. Describe the techniques suitable for printing knitted polyester and cotton fabrics, including precautions to avoid distortion. (10)

15. A. Write short notes on kalamkari printing. (6)

B. Write short notes on (10)
i)Ajrakh Printing.
ii)Bagru printing

(OR)

C. Discuss the role of fabric preparation and dye selection in Tie & Dye printing. (6)

D. Write short notes on (10)

i) Sanganeri Print.

ii) Flock printing.

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Semester : **III** Time:3 Hours

Course Code & Title : **PDTP302 Technology of Finishing** Maximum Marks: 100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. State two commercial importance of finishing.
2. What is meant by crosslinking in resin finishing?
3. Name two flame-retardant finishes for cotton.
4. Write two difference between waterproof and water-repellent finish.
5. Define the mechanism of soil retention on textiles.
6. Name two important antistatic agents used in textiles.
7. List any two drawbacks of foam finishing.
8. Mention the purpose of sanforising in cotton fabrics.
9. State two functions of silicon emulsion softeners.
10. Write two examples of nano-finishing techniques.

PART-B ((6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Discuss in detail the causes and remedies of strength losses of resign finished cotton fabric. (6)

    B. Differentiate between anti-crease finish and durable press resin finishing with examples of their applications. (10)

(OR)

    C. Write notes on liquor ammonia mercerization, machinery requirements, advantages, and limitations. (6)

    D. With neat sketches, explain the working of fabric mercerizing machines. (10)

12. A. Discuss any two methods of applying flame retardant finishes on cotton fabrics. (6)

B. Explain the working principle of antimicrobial finishes. Why are they widely used in medical and sports textiles? (10)

(OR)

C. Differentiate between waterproof and water-repellent finishes with reference to mechanism and uses. (6)

D. Explain the concept, chemicals used and application of rot proof finishes. (10)

13. A. Describe the different types of antistatic finishes with examples of chemicals or agents used. (6)

B. Explain the causes of pilling in textiles and how anti-pilling finishes work to prevent it. (10)

(OR)

C. Describe any two soil release finishes used for cotton fabrics. Mention their process and advantages. (6)

D. Discuss the challenges of soil release finishing in polyester and polyester–cotton blends. Suggest suitable solutions. (10)

14. A. Describe the mechanism of heat setting in thermoplastic fibres. (6)

B. Explain the process of calendaring. How does it improve the appearance and handle of fabrics? (10)

(OR)

C. Discuss the process of raising finish. What types of fabrics are commonly treated with this finish? (6)

D. Explain the principle of foam finishing. Discuss how it differs from conventional finishing techniques. (10)

15. A. Discuss the chemical nature and application properties of reactive softeners. (6)

B. Different types and functions of softners. (10)

(OR)

C. Discuss in detail the microencapsulation technique. (6)

D. Discuss in detail the mechanism in the weight reduction of polyester. (10)

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NOV/DEC-2025 SEMESTER EXAMINATION
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Semester : III Time:3 Hours

Course Code &Title : **PDTP 303 Chemistry of Intermediates & Dyes** Maximum Marks:100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define "Unit process"
2. Define Intermediates
3. Define van der Waal's interaction
4. Write down the structure of Picric acid
5. Write down the structure of Malachite green
6. Give an example of Fluorescent brightening agent along with its chemical structure
7. What are reactive dyes?
8. What is difference between dye and pigment?
9. Why vat dyes are not used for dyeing of silk?
10. Write down chemical structure of Rhodamine B

PART-B ((6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Give a brief introduction of natural dyes with suitable examples (6)
    B. Explain fractional distillation process of coal tar in detail (10)

(OR)

    C. Give a brief introduction of synthetic dyes with suitable examples (6)
    D. Explain with suitable examples i.) Halogenation ii.) Nitration (10)

12. A. Define with suitable example i.) Xanthene dyes ii.) Indigoid dyes (6)
    B. Give a broad classification of dyes based on their chemical structure with suitable examples (10)

(OR)

C. Define with suitable example i.) Nitroso dyes ii.) Nitro dyes (6)

D. Explain different types of dye fibre interactions with neat sketch (10)

13. A. Explain solubilised vat dyes (6)

B. Explain in detail chemistry of anthraquinone vat dyes with suitable example (10)

(OR)

C. Explain hot and cold brand reactive dyes (6)

D. Explain in detail Fluorescent brightening agent with suitable example (10)

14. A. Define H-acid along with its chemical structure (6)

B. Explain properties and chemical structure of i.) J-acid ii.) BON acid (10)

(OR)

C. Explain sulphur colour with suitable example (6)

D. Explain important intermediates from Naphthalene and Anthracene (10)

15. A. Define auxochromes with suitable examples (6)

B. Explain in detail preparation of dye Indigotin with suitable chemical reactions (10)

(OR)

C. Define chromophore with suitable examples (6)

D. Explain in detail preparation of dye Indanthrene Blue with suitable chemical reactions (10)

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NOV/DEC-2025 SEMESTER EXAMINATION

(Regulation-2021)

Semester : **III** Time:3 Hours

Course Code & Title : **PDTP304 Ecology& Pollution Control in Textile Industry** Maximum Marks: 100

PART-A (10×2=20 Marks)

Answer all the questions within two to three sentences

1. Define the environment. Name different segments of the environment.
2. What are the harmful effects of CO and SO_x on human being.
3. What is meant by indoor air pollution?
4. Name two gases that contribute to smog formation.
5. What do you mean by COD and BOD?
6. Mention any two methods of water conservation in the textile industry.
7. Write any two sources of solid waste in the textile industry.
8. State any one method of wastewater decolorization.
9. What are the harmful effects of noise pollution.
10. What is an eco-label?

PART-B ((6+10) ×5=80 Marks)

Answer all the questions in detail

11. A. Differentiate between natural and man-made environments with suitable examples. (6)

    B. Explain in detail the types, causes, and effects of pollution with reference to the textile industry. (10)

(OR)

    C. Describe the components and segments of the environment. (6)

    D. Discuss the harmful effects of environmental pollution on human health, vegetation, inert material, and the physical features of the atmosphere. (10)

12. A. Illustrate the difference between primary and secondary air pollutants? (6)

	B.	Explain how air pollution is caused, classified, and controlled, especially in relation to textile processing industries.	(10)
		(OR)	
	C.	What are air quality standards? Describe the importance of air quality standards and list key air quality parameters.	(6)
	D.	Discuss the major sources of air pollution in textile industries and elaborate on the harmful effects of chemicals used.	(10)
13.	A.	Discuss the problems caused by textile wastewater.	(6)
	B.	Discuss in detail the various sources of wastewater in textile wet processing industries.	(10)
		(OR)	
	C.	Describe the characteristics of wastewater: SS, TDS, DO.	(6)
	D.	Describe the effects of water pollution on man, marine life, and the ecological balance in the context of textiles.	(10)
14.	A.	Explain tolerance limits of effluents in wet processing and their significance for environmental protection.	(6)
	B.	Explain in detail the design and working of a textile effluent treatment plant with a flow diagram.	(10)
		(OR)	
	C.	Write a detailed note on the role of biological treatment in textile wastewater management.	(6)
	D.	Discuss methods of solid waste reduction in the textile industry.	(10)
15.	A.	Write a detailed note on eco-labels for textiles and their significance in global trade.	(6)
	B.	Explain various methods for controlling and preventing noise pollution in textile industries.	(10)
		(OR)	
	C.	Discuss briefly about the chemical hazards and its consequences in textile industry.	(6)
	D.	Critically examine the challenges faced by the textile industry in implementing strict eco-standards.	(10)

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