



**B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2024**

(Regulation 2018)

Fifth Semester

**TEXTILE TECHNOLOGY**

U18TXT5003: Textile Chemical Processing I

**COURSE OUTCOMES**

- CO1:** Discuss the principle and mechanism of singeing, desizing.  
**CO2:** Explain the various method of scouring, bleaching and mercerisation.  
**CO3:** Prepare the dye recipe for colouring the various fibre/fabric  
**CO4:** Examine the colour fastness of the dyed fibre/fabric.  
**CO5:** Explain the working principles of various dyeing machines.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 2 = 20 Marks)**

**(Answer not more than 40 words)**

- |   |     |                   |
|---|-----|-------------------|
| 1. List the primary objectives of textile chemical processing   | CO1 | [K <sub>2</sub> ] |
| 2. Explain the importance of the singeing process   | CO1 | [K <sub>2</sub> ] |
| 3. Compare oxidative and reductive bleaching agents   | CO1 | [K <sub>2</sub> ] |
| 4. Analyze the reason for increase in tensile strength and absorption of cotton fibre after mercerisation process | CO2 | [K <sub>4</sub> ] |
| 5. Illustrate and explain the mechanism of dyeing   | CO3 | [K <sub>2</sub> ] |
| 6. List the properties of Acid dyes   | CO3 | [K <sub>1</sub> ] |
| 7. Explain the advantages and disadvantages of mass coloration  | CO4 | [K <sub>2</sub> ] |
| 8. Define free volume theory  | CO4 | [K <sub>1</sub> ] |
| 9. List the types of water extraction techniques  | CO5 | [K <sub>1</sub> ] |
| 10. Compare inside-out and outside-in-circulation methods in dyeing   | CO5 | [K <sub>2</sub> ] |

**Answer any FIVE Questions:-**

**PART B (5 x 16 = 80 Marks)**

**(Answer not more than 400 words)**

- |   |   |     |                   |
|---|---|-----|-------------------|
| 11. a) A premium wear retail outlet requires a T-Shirt with print on a white background. Choose a chemical process sequence to suit the requirement and explain the objectives of each process. | 8 | CO1 | [K <sub>5</sub> ] |
|---|---|-----|-------------------|

	b)	Classify desizing methods and explain in detail the enzymatic desizing process	8	CO1	[K <sub>4</sub> ]
12.	a)	Discuss in detail the bleaching mechanism of the Hydrogen peroxide bleaching agent.	8	CO2	[K <sub>6</sub> ]
	b)	Explain in detail the method to evaluate the mercerization efficiency	8	CO2	[K <sub>2</sub> ]
13.		Discuss the dyeing procedure of dyeing cotton using reactive dyes and illustrate the dye fibre bond between the cotton fibre and the dye.	16	CO3	[K <sub>6</sub> ]
14.		Classify the methods to dye polyester fibre and explain in detail the one-bath dyeing process of Polyester / Cotton blended fabrics with a typical dye recipe and dyeing procedure.	16	CO4	[K <sub>5</sub> ]
15.		Explain the working of a padding mangle and discuss the advantages and disadvantages over other dyeing machines	16	CO5	[K <sub>5</sub> ]
16.	a)	Analyze the wash fastness testing procedure of cotton fabrics for the dyed fabrics	8	CO4	[K <sub>4</sub> ]
	b)	Explain the working principle of stenter drying process	8	CO5	[K <sub>2</sub> ]

\*\*\*\*\*