



B.TECH DEGREE EXAMINATIONS: MAY 2017

(Regulation 2015)

Fourth Semester

TEXTILE TECHNOLOGY

U15TXT403: Textile Pretreatment and Dyeing Technology

COURSE OUTCOMES

- CO1:** Discuss the principle and mechanism of singeing, desizing, scouring of grey fabric processing
CO2: Explain the various methods of bleaching and mercerizing of grey fabric processing
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
CO6: Summarize the pollution and ISO-14000 in dyeing industry

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. For scouring of wool, the most preferred agent is CO1 [K₃]
 - a) Sodium hydroxide
 - b) Sodium carbonate
 - c) Formic acid
 - d) Acetic acid
2. The enzyme that can be used to remove size particles in grey fabric during desizing is CO1 [K₄]
 - a) Cellulase
 - b) Amylase
 - c) Catalase
 - d) Pectinase
3. During bleaching of cotton with H₂O₂, the stabilizer used is CO2 [K₃]
 - a) Sodium hydroxide
 - b) Sodium carbonate
 - c) Sodium silicate
 - d) Acetic acid
4. Mercerization of cotton does not result in CO2 [K₄]
 - a) Strength increase
 - b) Shade depth increase
 - c) Crystal modification
 - d) Decrease moisture regain %

10. Consider the elements in List I and List II and choose the correct alternatives from amongst a, b, c, and d CO3 [K₃]

| List I | | | | List II | | | |
|--------------|--|--|--|-------------------|--|--|--|
| A. Cotton | | | | i. Acid dye | | | |
| B. Polyester | | | | ii. Basic dye | | | |
| C. Acrylic | | | | iii. Disperse dye | | | |
| D. Silk | | | | iv. Reactive dye | | | |

A B C D

- | | | | | |
|----|-----|-----|-----|----|
| a) | i | ii | iii | iv |
| b) | ii | iii | iv | i |
| c) | iii | ii | i | iv |
| d) | iv | iii | ii | i |

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

- | | |
|---|-----------------------|
| 11. Why pretreatment is needed for dyeing of textile substrate. | CO1 [K ₃] |
| 12. How to evaluate the desizing efficiency of desized fabric. | CO1 [K ₄] |
| 13. Classify the bleaching agents based on peroxy and chlorine compounds. | CO2 [K ₃] |
| 14. Illustrate the gradual changes in cross section of cotton fibre on mercerization. | CO2 [K ₃] |
| 15. Give the mechanism of reactive dye with cotton material. | CO3 [K ₂] |
| 16. Why are Azo dyes banned globally? | CO3 [K ₃] |
| 17. Highlight the mass colouration of Nylon. | CO3 [K ₃] |
| 18. Compare the colour fastness properties of water soluble dye. | CO4 [K ₄] |
| 19. What are the points to consider while selecting a dyeing machine? | CO5 [K ₄] |
| 20. Give any four merits of infra-red dyeing machine. | CO5 [K ₃] |

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. Summarize the testing methods and procedure for washing, and rubbing fastness of dyed fabric. CO4 [K₄]
22. Explain in detail the mechanism involved in desizing of cotton fabric with example.. CO1 [K₄]
23. Discuss the mechanism and functions of auxiliaries used in hydrogen peroxide bleaching of cotton fabric and also highlight the evaluation of bleaching efficiency. CO2 [K₄]
24. Give an account of mechanism and application of vat dye on cotton material. And also highlight the significance of each chemicals and steps. CO3 [K₄]
25. Why polyester material is dyed with disperse dye? Explain the process of dyeing of polyester fabric with high temperature high pressure (HTHP) dyeing machine. CO3 [K₄]
26. With neat diagram, explain the precautions and dyeing operation performed in soft flow dyeing machine. And also highlight the merits and demerits CO5 [K₃]
27. Explain the precautions and dyeing operation performed in any one garment dyeing machine with neat diagram. CO5 [K₃]
