

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Textile and Apparel Technology



Study Programme : Bachelor of Industrial Studies Honours
Name of the Examination : Final Examination
Course Code and Title : TAI4344 Industrial Garment Washing and Finishing
Academic Year : 2024/25
Date : 5th February 2026
Time : 0930-1230h
Duration : 3 hours

General instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **eight (8)** questions in **Three (3)** pages.
3. Write down your Index Number in all the pages of the answer script.
4. Answer the question one (Q1), which is compulsory and five (05) more questions from Q2 to Q8. Question one (Q1) carries twenty-five (25) marks and Question two (Q2) to eight (Q8) carry fifteen (15) marks each.
5. Answer to each question should commence from a new page. If a question has many parts, all the parts should be answered in the chronological order under the same question.
6. Write down the answered question numbers in the space given in the answer book.
7. Answers should be in clear hand writing.
8. Do not use red colour pens to write the answers.
9. This is a Closed Book Test (CBT).

Compulsory Question

- (1) (a) Mention four (04) main objectives of garment washing and finishing. (04 Marks)
- (b) What is the main purpose of the desizing process in garment washing and finishing? (02 Marks)
- (c) Mention the two (02) essential features that must be considered prior to stain removal in garment washing. (02 Marks)

- (d) State the four (04) types of forces involved in the fixation of dye molecules to fibres during garment dyeing. (04 Marks)
- (e) Why does direct dyes exhibit poor wash fastness? (03 Marks)
- (f) Mention any two (02) disadvantages associated with the stone washing process. (04 Marks)
- (g) What is the main difference between cellulase and laccase treatments used in denim abrasion? (02 Marks)
- (h) State any three (03) problems associated with garment dyeing compared to fabric dyeing. (03 Marks)
- (i) What is meant by Material to Liquor Ratio (MLR) in relation to garment washing and finishing? (01 Marks)

Answer any five (05) questions from the following seven (07) questions

- (2) (a) Differentiate "Dry processes" and "Wet processes" practiced in garment washing and finishing. (04 Marks)
- (b) Providing chemicals required and their functions, describe the "Loading and initial rinsing process" of garment washing. (06 Marks)
- (c) i. Why is it important to deactivate enzymes after the abrasion process of garments? (02 Marks)
- ii. Mention three (03) methods that can be used for deactivation of enzymes. (03 Marks)
- (3) (a) Explain any two (02) advantages of digital printers over screen printers. (04 Marks)
- (b) What are the three (03) stages of solid and liquid soil removal from fabrics in aqueous medium? (03 Marks)
- (c) Describe the procedures for treating unknown stains using "Dry-side treatment" and "Wet-side treatment". (08 Marks)
- (4) (a) Briefly describe five (05) application steps of "reduced vat method" used in garment dyeing. (10 Marks)
- (b) Explain the role of sodium chloride (NaCl) in the dyeing of cellulosic fibres with direct dyes and Sulphur dyes. (05 Marks)

- (5) (a) Detergents consist of number of auxiliaries, which are used as auxiliary chemical products under different names, depending on their special characteristics. One such important auxiliary is the wetting agent. Explain the comprehensive action of a wetting agent in garment washing. (05 Marks)
- (b) By using suitable illustrations, explain the role of detergents in resisting agglomeration. (04 Marks)
- (c) Mention any two (02) commonly available softener types and explain the effect of softeners on the fastness properties of washed garments. (06 Marks)
- (6) (a) Explain the functions of chromophores and auxochromes in dye molecules. (06 Marks)
- (b) Explain why fastness to rubbing property is important in garments. (03 Marks)
- (C) What do you understand by the term "Enzymes" in relation to garment washing and explain the basic function of enzymes. (03 Marks)
- (d) Discuss the importance of using buffers in garment enzyme washing processes. (03 Marks)
- (7) (a) Compare grinding and brushing techniques with respect to, (09 Marks)
- Method of operation
 - Level of abrasion
 - Garment appearance
- (b) Describe how intermolecular bonds in fibres are affected during creasing and by using suitable illustrations, explain how this leads to permanent crease formation. (06 Marks)
- (8) Write short notes on the followings in relation to garment dyeing and finishing.
- Bio Polishing (03 Marks)
 - Creating Monkey Wash effect (03 Marks)
 - Dip Dyeing (03 Marks)
 - Tie and Dyeing (03 Marks)
 - Drip Dyeing (03 Marks)