

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	: 2020/2021
Date	: 03 rd February 2022
Time	: 0930 - 1230hrs
Duration	: 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
 2. This question paper consists of **Eight (8)** questions in **Four (4)** pages.
 3. **Number of questions to be answered = 06**
 4. Answer **Question one (Q1)**, which is compulsory and **Five (05) more** questions.
 5. Question one (Q1) carries 25 marks and questions two (Q2) to eight (Q8) carry fifteen (15) marks each.
 6. Answer for each question should commence from a new page.
 7. Answers should be in clear handwriting.
 8. Do not use red colour pens.
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Compulsory Question

- (Q1) (a) Give two (02) categories of washing and finishing treatments based on the techniques used to achieve the required effect. List two (02) examples for each category that you have given. (04 marks)
- (b) Giving two (02) reasons, briefly explain why the denim materials are suitable for abrasion finishes? (04 marks)
- (c) Briefly discuss the functions of a de-stoner used in garment washing and finishing processes. (03 marks)
- (d) Differentiate between the terms "Soil removal" and "Stain removal" used in garment washing and finishing. (04 marks)
- (e) Gas fading effect can be observed in fabrics dyed using disperse dyes. Give the reason for this effect and briefly state how to minimize it. (04 marks)
- (f) Write the two (02) types of cellulase enzymes used in garment washing and finishing processes. (02 marks)
- (g) Differentiate between the terms "Crease recovery finish" and "Scrunch finish". (02 marks)
- (h) Briefly explain the reason for yellowing effect observed in denim fabrics treated with Moon wash. (02 marks)

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

- (Q2) (a) Explain the process of loading and initial rinsing during garment washing. Clearly indicate the processing parameters, and the chemicals added. (05 marks)
- (b) Write down short notes on the functions of following equipment used in garment washing and finishing processes.
- (i) Hydro Extractor
- (ii) Baking or Curing Oven (04 marks)
- (c) Briefly describe the six (06) processing steps involved in garment abrasion using pumice stones. (06 marks)

- (Q3) (a) Answer the following based on your knowledge on using detergents in wetting the substrates during the solid and liquid soil removal from a fabric in aqueous medium.
- (i) Reason/s for using detergents during soil removal (05 marks)
 - (ii) Function/s of detergents during soil removal (06 marks)
- (b) Explain the two (02) factors considered prior to stain removal from a fabric surface. (02 marks)
- (c) Briefly describe the equipment/ workstation used to remove stains from completed garments. (02 marks)
- (Q4) (a) Write short notes on the following intermolecular forces involved in garment dyeing processes.
- (i) Vander-Waals forces
 - (ii) Electro-static links
 - (iii) Hydrogen bonds (09 marks)
- (b) Explain the terms "Affinity" and "Substantivity" in relation to interaction between dye molecules and fibres. (06 marks)
- (Q5) (a) Explain the three (03) treatments available to improve the wash fastness of fabrics dyed using Direct dyes. (06 marks)
- (b) Write short notes on the following properties of Reactive dyes.
- (i) Wash fastness
 - (ii) Light fastness
 - (iii) Effect of acids (06 marks)
- (c) Briefly describe the pigment application with binder. (03 marks)
- (Q6) (a) List six (06) disadvantages using stone washing method for denim garments. (06 marks)
- (b) Write short notes on the following methods used for denim garment finishing.
- (i) Sand blasting
 - (ii) Sand wash
 - (iii) Grinding (09 marks)

- (Q7) (a) Explain the following related to peach skin finish applied for fabrics.
- (i) What do you understand by peach skin effect? (02 marks)
 - (ii) Suitable fibre types (02 marks)
 - (iii) The three (03) processing stages (06 marks)
- (b) Briefly describe the method of applying bio-polishing effect on a fabric. (05 marks)
- (Q8) (a) Discuss three (03) problems associated with garment dyeing compared to fabric dyeing. (06 marks)
- (b) Differentiate between the "Dip dyeing" and "Drip dyeing" methods used for garment dyeing. (04 marks)
- (c) Write down the four (04) main parameters that should be controlled to get a better moon-wash appearance on a garment. (02 marks)
- (d) Briefly explain the effect of pH and temperature on the application of softeners. (03 marks)