

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



Study Programme	: Bachelor of Technology Honours in Engineering / Bachelor of Industrial Studies Honours
Name of the Examination	: Final Examination
Course Code and Title	: TAX4539 Quality Assurance for Textile and Clothing
Academic Year	: 2020/2021
Date	: 17 th February 2022
Time	: 1400-1700 Hours
Duration	: 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of Eight (08) questions in Four (04) pages.
3. Write down your Index Number in all the pages of the answer script.
4. **Answer compulsory question one (Q1) and additional five (05) questions.**
5. Question one (Q1) is compulsory and carries twenty-five (25) marks.
6. Question two (Q2) to eight (Q8) carry fifteen (15) marks each.
7. Answer for each question should commence on a new page. If a question has many parts, all the parts should be answered in the chronological order under the same question.
8. Write down the answered question numbers in the space given in the answer book.
9. Answers should be in clear hand writing.
10. Do not use red colour pen.

Compulsory Question

(Q1)

- (a) Briefly explain how customers define the quality of a product or service. (02 Marks)
- (b) A sewing thread is quoted as 120/4 Nm. Calculate the ticket number of the sewing thread. (02 Marks)
- (c) Briefly explain the differences between in-process inspection and centralized inspection used in garment factories. (02 Marks)
- (d) State the standard atmospheric conditions used for physical testing of textiles in tropical countries. (02 Marks)
- (e) Convert 150 decitex into tex, denier and cotton count (Ne). (03 Marks)
- (f) Mention the four (04) types of "Quality costs" that are categorized according to the Prevention-Appraisal-Failure model and briefly explain the behavior of those quality costs with the number of defects in the product. You may use suitable sketches. (04 Marks)
- (g) What is "Seam slippage"? State any three (03) possible causes for the seam slippage related to the fabric and the seam used. (03 Marks)
- (h) Briefly explain three (03) main types of fabric/garment abrasion and give the examples, where those abrasions are possible to occur. (03 Marks)
- (i) State two (02) methods of measuring fabric stiffness. (02 Marks)
- (j) Briefly explain why wool fabrics are subjected to felting shrinkage. (02 Marks)

----- **End of the Compulsory Question** -----

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

- (Q2)** (a). There are many ways to describe term "Quality". Using an example, explain how manufacturers describe the quality of a product or service that they provide. (05 Marks)
- (b). Explain the effect of the quality improvement on the following product characteristics.
- i. Price of the product
 - ii. Market share acquired by the product
 - iii. Award of the quality certification

(06 Marks)

- (c). Distinguish between “Quality assurance” and “Quality improvement” procedures. (04 Marks)

- (Q3) (a). Explain what you understand by “Total Quality Management (TQM)”. (04 Marks)

- (b). Briefly explain five (05) key practical steps that an organization must use to achieve “Total quality”. (05 Marks)

- (c). A woven fabric roll was inspected for quality and found to have the following defects. Using the ten-point system, determine whether the fabric roll is up to the required quality standards or not.

The length of the fabric roll = 100 yards

Warp Defects:

<i>Type of defect</i>	<i>Number of defects</i>
<i>Defects up to 1 inch</i>	<i>7</i>
<i>Defects of over 1 inch long but less than 5 inches</i>	<i>3</i>
<i>Defects of over 5 inches long but less than 10 inches</i>	<i>4</i>
<i>Defects of over 10 inches long but less than 36 inches</i>	<i>1</i>

Weft Defects:

<i>Type of defect</i>	<i>Number of defects</i>
<i>Defects up to 1 inch</i>	<i>9</i>
<i>Defects of over 1 inch long but less than 5 inches</i>	<i>2</i>
<i>Defects larger than half the width</i>	<i>1</i>

(06 Marks)

- (Q4) (a). When manufacturing garments, faults may occur at any stage of the manufacturing process. Mention two (02) stages in the garment manufacturing process where faults can occur and discuss the most common types of faults that can occur at each stage. (08 Marks)

- (b). Explain five (05) common types of defects in weft knitted fabrics and their causes. Use diagrams where necessary. (07 Marks)

- (Q5) (a). List five (05) objectives of “Strength testing” of fabrics for clothing. (05 Marks)

- (b). The strength of a fabric depends on the type of force acting on the fabric. Briefly explain the following most commonly used fabric strength measurements.

- i. Bursting strength
- ii. Tearing strength

(04 Marks)

- (c). The method used to determine tensile strength of a fabric varies depending on how the fabric samples are cut and prepare for testing. Compare “Ravelled strip” and “Grab” methods used for determining fabric tensile strength, highlighting the test procedure, advantages, and disadvantages of each. (06 Marks)
- (Q6) (a). Define what is “Fabric drape” and explain the method of determining the fabric drape. Use diagrams where necessary. (09 Marks)
- (b). Explain the method of measuring water permeability of a fabric using relevant diagrams. (06 Marks)
- (Q7) (a). Distinguish between “Crease recovery” and “Crease resistance”. (04 Marks)
- (b). What is meant by “Fabric objective measurement”? (05 Marks)
- (c). Describe the various **parameters** defined under each of the following fabric properties that are generally tested using the instruments used for *fabric objective measurements*.
- i. Shear
 - ii. Compression
- (06 Marks)
- (Q8) (a). Explain why the testing of the yarn quality is important for textile industry. (03 Marks)
- (b). Discuss the effect of yarn twist on the woven and knitted fabric manufacturing processes. (05 Marks)
- (c). Briefly describe the factors that contribute to the production of uneven yarns. (04 Marks)
- (d). Numerous laboratory tests are used to determine the identity and verification of fibers. Briefly describe three (03) test methods that are used for identifying wool fibers. Use diagrams where necessary. (03 Marks)