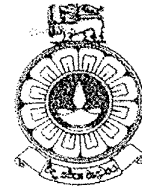


The Open University of Sri Lanka  
Faculty of Engineering Technology  
Department of Textile and Apparel Technology



Study Programme	: Bachelor of Science Honours in Engineering/ Bachelor of Industrial Studies Honours
Name of the Examination	: Final Examination
<b>Course Code and Title</b>	<b>: TAX6263 Textile Product Engineering</b>
Academic Year	: 2023/2024
Date	: 19 <sup>th</sup> March 2025
Time	: 0930 – 1230 Hours
Duration	: <b>3 hours</b>

### General Instructions

1. Read all instructions carefully before answering the questions.
2. This is a Closed Book Test (CBT).
3. Write down your Index Number in all the pages of answer scripts.
4. This question paper consists of Six (06) questions in four (04) pages.
5. Answer five (05) questions only. Each question carries twenty (20) marks
6. Do not write answers to the additional questions.
7. Answers for 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.
8. Write down the answered question numbers in the cover page of the answer book.
9. Answers should be in clear handwriting.
10. Do not use red colour inked pens to write the answers.

- (Q1) (a) If you use the BS7000 model to develop your product, **product creation** is one of the most important phases, that has four main activities. Briefly describe the tasks involved in each of these activities. (08 marks)
- (b) If you want to launch a new apparel product to the market, what activities should be done in product development and product realization phases under the overall process of product creation model? (04 marks)
- (c) (i) Using suitable diagrams, briefly explain the main two methods that you can use to schedule the activities in product development in the industry, giving their advantages/disadvantages (06 marks)
- (ii) Briefly explain the advantages of considering the product development as an endless/cyclic activity. (02 marks)
- (Q2) (a) Give any two (02) examples for the **each** of the components of SWOT analysis that you do under the evaluation of a strategic position of a company. (08 marks)
- (b) Briefly describe the five (05) phases involved in product development cycle. (05 marks)
- (c) (i) If you are designing a product to cater for large number of customers, what are the two (02) main strategies that you can use in designing your product? Give one (01) example for each strategy. (04 marks)
- (ii) Differentiate the three (03) types of logical patterns used in developing a product concept. (03 marks)
- (Q3) (a) Using the example of Cotton-Polyester blending in fabric manufacturing, briefly describe the interdependent requirement concept of a product. (08 marks)
- (b) (i) Briefly explain why the degree of satisfaction concept is important for a product in designing. (04 marks)
- (ii) A student proposes to do a market survey to determine how people value different attributes of a digital camera. He has selected 8 attributes from 4 most popular digital camera brands available in the market. Determine the optimum number of product concepts that he can use for his questionnaire

- to find the most customer valued attributes amongst them. You may use fractional factorial experiment-design to answer this question. (04 marks)
- (c) Briefly explain the Iterative Design method used in professional design procedure and explain this method using a suitable diagram. (04 marks)
- (Q4) (a) Briefly explain the concept of 'value' in designing the product and describe why applying this concept is important for growth of any production industry. (04 marks)
- (b) (i) Briefly explain why both the technical FAST (Function Analysis System Technique) and customer FAST diagrams are used by a product designer. (04 marks)
- (ii) Develop a simple customer FAST diagram for the comfort function of a blouse design. (08 marks)
- (c) Briefly explain why benchmarking the competitors is important in value improvement process of a product. (04 marks)
- (Q5) (a) Briefly explain how the acquisition cost helps to decide the product price in the market. (04 marks)
- (b) (i) What is "Design Cost" and briefly explain how it helps to expand the market in the competitive business environment. (03 marks)
- (ii) Briefly describe how you can practice Design to Cost technique in the industry. (05 marks)
- (c) (i) Briefly explain why Target Costing technique is considered as a proactive approach to product pricing. (04 marks)
- (ii) Briefly explain why in today's competitive business environment, traditional costing is not suitable in comparison to target costing. (04 marks)

- (Q6) (a) (i) In product engineering, risk is a combination of two factors. Draw a diagram and explain the effect of these two factors on risk. (04 marks)
- (ii) There are primarily three frameworks that describe the way people should do and act ethically. Briefly explain these three (03) frameworks. (06 marks)
- (b) Describe any three (03) reasons why today's ecological issues are important in product development? (06 marks)
- (c) Briefly explain how the ecology of product use and recycling help to achieve the goals of green engineering. (04 marks)