



The Open University of Sri Lanka
Department of Textile and Apparel Technology
Bachelor of Technology /- Industrial Studies
Final Examination-2013/2014
TTX6135-Textile Product Engineering
Duration- 3 Hours

Date: 30th August 2014

Time: 0930-1230hrs

Total number of questions: 07

Answer **five (05) questions** only. Each question carries 20 marks.

- Q1. (a)** Briefly explain why product development phases must be well organized in the textile and apparel industry. (04 marks)
- (b)** Scheduling the product development phases can be done by two methods. Compare those two (02) methods and state the most suitable method for apparel manufacturing organization with giving reasons. (08 marks)
- (c)** Explain why the product development has to be carried out continuously as a cyclic activity. You may draw a suitable sketch. (08 marks)
- Q2. (a)** Explain the main three (03) directions that can be considered to expand any business with specifying the main activities to be carried out in each direction. (06 marks)
- (b)** What are the five (05) steps in product planning cycle and state the activities involved in each of these steps. (08 marks)
- (c)** What do you understand by “Market Requirement Document (MRD)” and briefly explain why it is needed in product development process. (06 marks)
- Q3. (a)** Why the design driver is important in product development? Briefly explain the main two (02) methods that you can use to search the product ideas to develop a design driver for a novel product. (06 marks)
- (b)** Why” Product concept” is important in product development? Briefly explain three (03) methods that can be used to obtain the description of the product concept. (08 marks)

- (c) What do you understand by “Conjoint analysis” and state the task/s involve in conjoint analysis. (06 marks)
- Q4. (a)** What do you mean by “Professional design” methodology used in product designing? What are the three (03) styles that are commonly used in professional designing and state the principles involved with each of these three styles. (08 marks)
- (b) What is “Collective design” methodology and briefly explain how the collective design methodology can be used for apparel product designing. You may consider three main methods involved in collective design methodology. (08 marks)
- (c) Briefly explain what is “Market testing” and state why it is important for product design evaluation? You may consider what information gathering in market testing. (04 marks)
- Q5. (a)** Differentiate “Value engineering” and “Value analysis” processes to improve the quality of product design and briefly explain the basic steps involved in value engineering process. (09 marks)
- (b) In value analysis process, the functions of any product is divided into two types. Briefly explain these two (02) types with taking any product as an example. (06 marks)
- (c) Briefly explain the three (03) steps involved in value analysis process and state what do you understand by “Quality functional deployment (QFD)” ? (05 marks)
- Q6. (a)** What do you understand by the term “FAST”? Briefly explain why FAST model is important in product designing with giving suitable example and draw a sample FAST diagram for any desired product designing process. (08 marks)
- (b) Why do the “Technical FAST” and “Customer FAST” diagrams important in product development process? (04 marks)
- (c) Briefly explain the five (05) steps needed to follow to improve the value of a product after developing the FAST model. (08 marks)

Q7. (a) Why “Design to cost” is very important to consider in product development process and briefly explain four (04) elements that are involved in design to cost approach. (08 marks)

(b) (i) What do you understand by the two terms “Risk” and “Risk management”?

(ii) Briefly explain the following statement:

“In product engineering, a risk is a combination of constraint and uncertainty”.

You may use a suitable sketch to explain this. (07 marks)

(c) What do you understand by “Environmental friendly product engineering”? Briefly explain any three (03) examples related to textile and apparel products in order to accomplish the “Environmental friendly product engineering”. (05 marks)