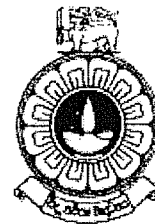THE OPEN UNIVERSITY OF SRI LANKA

DEPARTMENT OF TEXTILE AND APPAREL TECHNOLOGY

BACHELOR OF TECHNOLOGY HONOURS IN ENGINEERING /
BACHELOR OF INDUSTRIAL STUDIES HONOURS

FINAL EXAMINATION- 2015/2016

TTX6135-TEXTILE PRODUCT ENGINEERING

DURATION: 3 HOURS

Date: 07th December 2016   Time:0930-1230hrs

Total number of questions: 07

Answer **five (05)** questions only.

Each question carries one hundred (100) marks.

Q1. (a) Any product creation process consists of several phases. What are they? Briefly explain what types of operations are to be performed at <u>each of these phases</u> while <u>designing and developing a new garment style</u>.

(30 marks)

(b) Write a short note on the two (02) possible methods of scheduling the activities involved in a project/product development process and briefly explain the advantages and disadvantages of these two methods.

(40 marks)

(c) Product development sequence has several stages. Briefly explain <u>each</u> of them and clarify why they are required to be arranged in a cyclic manner.

(30 marks)

Q2. (a) ABC Lanka Pvt Ltd has planned to expand its business in the year 2017 as one of the goals of its strategic design plan. Write a short note to the management describing the possible directions to achieve this goal.

(30 marks)

(b) (i) Product planning process cycle has five stages. Briefly explain the tasks involved at <u>each of these five stages</u>.   (40 marks)

(ii) In production planning process, Market Requirement Document (MRD) is prepared. Briefly explain the components that are included in this document.   (10 marks)

(c) What is meant by "Target customer" and briefly explain why target customer is very important in expanding the business.   (20 marks)

Q3. (a) Write a short note on "Design driver" considering the following:

(i) What is it?

(ii) Why is it being used?

(iii) An example for a design driver

(iv) Methods of finding necessary data/information to develop such a design driver.
You may have to briefly explain each of these points. (40 marks)

(b) (i) Briefly explain the relationship between the design driver and the product concept as they are used in design and development of a product in the manufacturing industry. (15 marks)

(ii) Briefly explain the three (03) methods that you will consider for searching the description for developing a product concept and give the advantages and disadvantages of each of these methods. (45 marks)

Q4. (a) In designing and developing a product, its attributes can be divided into two groups such as obligatory and voluntary requirements. Differentiate these two, giving suitable examples. (20 marks)

(b) Give a short account on "Degree of satisfaction" including the following.

(i) Meaning of Degree of satisfaction

(ii) An example graph to design this concept

(iii) Method of measuring degree of satisfaction. You may give an example to explain this. (40 marks)

(c) Briefly explain what is conjoint analysis and how it is useful in designing and developing a new product. (40 marks)

Q5. (a) Differentiate professional design and collective design techniques that can be used in designing and developing a product and give suitable examples for each of them. (30 marks)
(b) Briefly explain any two (02) styles that can be used under professional design technique. (30 Marks)

(c) (i) why "Collective design" techniques are important for clothing industry? (10 marks)

(ii) Briefly explain three (03) methods by which collective design can be done in apparel designing. (30 marks)

Q6. (a) **(i)** What do you understand by "Value analysis" and explain why is it important in manufacturing industry. (10 marks)

(ii) Briefly explain the steps by which you can implement value analysis to your manufacturing organization. (30 marks)

(b) Differentiate value engineering with value analysis techniques. Briefly explain six (06)various phases in value engineering? (40 marks)

(c) Name and differentiate two (02) approaches that you can practice to obtain feedback and critiques after selling your products to the customer. (20 marks)

Q7. (a) Differentiate "Design to cost" and "Target costing" concepts as used in product designing and development process. (20 marks)

(b) "Risk in production engineering depends on two factors, namely constraints and uncertainty". Using a suitable diagram, justify this statement and briefly explain how could you minimize risk. (40 marks)

(c) In today's world it is very important to consider the ecological issues in product engineering. Briefly explain why it is and describe any three (03) options available for a product engineer to develop an environmental friendly product. (40 marks)