

THE OPEN UNIVERSITY OF SRI LANKA  
BACHELOR OF INDUSTRIAL STUDIES /  
BACHELOR OF TECHNOLOGY  
FINAL EXAMINATION - 2005/2006  
TTX6135 TEXTILE PRODUCT ENGINEERING  
DURATION - THREE HOURS

040



DATE: 21 March 2006

TIME: 0930 - 1230 Hours

Total Number of Questions = 10      Number of Questions to be answered = 06

Answer Question 1, which is compulsory and additional five (05) questions.

Question 1 carries twenty-five (25) marks and Questions 2 to 10 carry fifteen (15) marks each.

Compulsory Question

01. a. What are the outcomes of the product designing sub-phase within the product development phase? (02 marks)
- b. Market analysis is an important tool used in obtaining input for product ideas. Briefly explain what type of product ideas could be gathered through market analysis. (02 marks)
- c. A new product must meet the expectations of various people including the customers. Once the customer viewpoints on a new product are obtained they need to be compressed. State four ways by which the various ideas obtained could be compressed. (02 marks)
- d. There are at least three main styles for the design of products: the methods of logical reasoning, those that rely on subconscious maturing of the task and Iterative methods. Briefly explain what is subconscious maturing. (03 marks)
- e. In most instances design work does not involve creation of radical new design concepts but making modifications to existing product designs. Name four modifications that are done on products to improve it. (02 marks)
- f. Briefly explain what you understand by benchmarking competitors, which is one of the tools used in the value improvement process. (02 marks)
- g. Briefly explain what you understand by "target costing". (03 marks)
- h. Briefly explain what you understand by "risk". (03 marks)
- i. Give two reasons why utilitarian theory of ethics is more popular than other theories of ethics. (03 marks)
- j. Briefly explain what you understand by "life cycle analysis" with reference to environmental issues. (03 marks)

Answer any five questions from the following nine questions.

02. a. Briefly explain the importance of scheduling the phases of product development. (04 marks)
- b. What do you understand by "strategic design"? (03 marks)
- c. With the help of a suitable example explain the product planning process. (08 marks)
03. Develop a FAST model and prepare the Value Analysis Matrix for the production of a ball point pen. (15 marks)
04. a. One of the methods used to arrive at a product concept is by "exemplars method". Taking a suitable example, briefly explain how a detailed product concept could be formulated using the exemplars method. (08 marks)
- b. Explain with the help of a suitable example, how product concepts are developed using the "specification method". (07 marks)
05. a. When products are designed, most often it is necessary to include certain obligatory requirements. With the help of an example explain what you understand by obligatory requirements. (05 marks)
- b. Explain the interdependent qualities of cotton and polyester fibres and state how an acceptable cotton/polyester blend percentage could be arrived at. (05 marks)
- c. In evaluating a design proposal it is necessary to get the point of view of the customers. Briefly explain the important aspects in which customer viewpoint is required. (05 marks)
06. a. Explain the different ways by which design proposals could be presented. (05 marks)
- b. Explain the importance of evaluating the design proposal (05 marks)
- c. What are the different techniques that are used in design evaluation? (05 marks)
07. a. Explain, with suitable examples, the three areas where changes in industrial procedures are urgently needed to address the ecological problems faced by the human race. (06 marks)
- b. With suitable examples explain the avenues available for a product engineer to develop an environmental friendly product. (09 marks)

08. a. With suitable examples explain what you understand by value engineering. (05 marks)
- b. The first step in value analysis of a product is definition of the problem and scope. With the help of an example demonstrate how this is done. (05 marks)
- c. Briefly explain what you understand by "Quality Function Deployment". (05 marks)
09. a. Explain what you understand by "risk management". (04 marks)
- b. Risk assessment and risk control are two stages in the process of risk management. Explain the elements involved in each of these two stages. (06 marks)
- c. A project manager can assess the risk impacts with a severity index. With a suitable example explain how this could be done. (05 marks)
10. Explain what you understand by the following terms with reference to product development.
- a. Recurring production cost of a product
  - b. Non-recurring costs
  - c. Product costs
  - d. Product price or acquisition costs
  - e. Life cycle costs of a product

(05 x 3 = 15 marks)

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