

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF TECHNICAL TEACHER EDUCATION

INDUSTRIAL DESIGN – TIE3119

1ST SEMESTER EXAMINATION May 2011

Duration: 3hrs

Instruction(s)

Answer any four questions. Each question carries **25** marks and there are six in total.

Question 1

- a. State the five major phases in a product's life cycle. **[5]**
- b. Discuss in detail the first four stages in a product's life cycle. **[20]**

Question 2

- a. Describe one method that can be used to ascertain in which phase of its life is a product. **[8]**
- b. Explain the role played by Research and Development in product design. **[5]**
- c. Discuss any four "design for X" methodologies. **[12]**

Question 3

- a. Explain the meaning of the phrase 'product cannibalism'. [5]
- b. Discuss the five scenarios that can render cannibalisation of a product unfavourable. [20]

Question 4

Outline the product design process using any engineered product of your choice, with neat illustrations where relevant. [25]

Question 5

- a. Define Concurrent Engineering. [2]
- b. Explain some of the benefits of Concurrent Engineering. [8]
- c. EMI is one of the building blocks of Concurrent Engineering. Discuss the features and goals of an EMI process. [15]

Question 6

- a. Define Quality Function Deployment. [3]
- b. Describe the four phases of a Quality Function Deployment process. [12]
- c. Develop a simple House of Quality matrix for the design of a screw driver. [10]

End of exam