

**B. Tech. MECHANICAL ENGINEERING  
(BTMEVI)**

**Term-End Examination**

**June, 2014**

**BIMEE-002 : PRODUCT DEVELOPMENT  
AND DESIGN**

*Time : 3 hours*

*Maximum Marks : 70*

*Note: (i) Answer any five questions.  
(ii) All questions carry equal marks.*

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1. (a) Distinguish between Product definition and Design definition. Briefly explain the concept of design by evolution with an example. 7
  - (b) Briefly explain the different considerations in product design with emphasis on reliability and economical feasibility. 7
  2. (a) How do you understand and identify the needs of a customer and how these needs are classified ? 7
  - (b) Explain the terms "Utility concept", "Utility value" and "Utility index". 7
  3. (a) Elaborate the "use of standards" in product design. 7
  - (b) What are different types of cost associated with break even analysis ? Explain how break even analysis is carried out. 7

4. (a) What is reliability ? What are the factors to be considered in design with regards to product design. 7  
(b) Briefly explain "Bath tub" curve with a neat sketch. 7
5. (a) What do you mean by work study ? Explain its procedure and objectives. 7  
(b) Briefly explain Technological Forecasting. 7
6. (a) Why a product is designed for ? Explain the different criteria. 7  
(b) Explain how a decision can be taken under multiple criteria. 7
7. Write short notes on **any four** of the following :
- (a) Anthropometry **3½x4=14**  
(b) Mental Blocks and Removal of Mental Blocks  
(c) Brain storming  
(d) Failure Mode and Effect Analysis (FMEA)  
(e) Benchmarking
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