

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

**Term-End Examination**

**December, 2017**

00052

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

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Answer any *five* questions. All questions carry equal marks.

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1. (a) Briefly discuss the need of product development and design with the help of an example. 7
- (b) Briefly explain the different considerations in product design with emphasis on reliability and economical feasibility. 7
2. (a) Discuss briefly the three phases of morphology of design. 7
- (b) Explain the role of ergonomics in product development and design. 7

3. (a) What is Ideation ? Why is it so difficult to get ideas once the “Analysis of Need” has been carried out ? 7
- (b) Briefly discuss brainstorming and its advantages with suitable example. 7
4. (a) How can customer needs be transformed into a functional map for a product ? Discuss in brief. 7
- (b) Explain man-machine interface with the help of appropriate examples. 7
5. (a) Define and describe reliability considerations in product development and design. 7
- (b) Briefly explain Bath-tub curve with a neat sketch. 7
6. (a) What do you mean by Work Study ? Explain its procedure and objectives. 7
- (b) Explain life cycle assessment and describe its role in environment impact analysis. 7

7. (a) Briefly explain Technological Forecasting. 7

(b) Explain the techniques that improve the method and quality of products. 7

8. Write short notes on any *four* of the following :  $4 \times 3 \frac{1}{2} = 14$

(a) Design by Evolution

(b) Safety Razor

(c) Mental Blocks

(d) Utility Index

(e) Break-Even Analysis

(f) MTTF

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