

B. Tech. (Mechanical)

Term-End Examination

December, 2012

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

Time : 3 hours

Maximum Marks : 70

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

1. (a) Discuss stage - gate process of product development. 7
(b) Enumerate significance of stage - gate process in the modern industrial environment. 7
2. (a) Briefly describe 'S' curves. Discuss the role of S - curves in the innovation cycle of new technology. 7
(b) How are the customer needs classified? List down different ways together customer needs. Explain any one of them. 7
3. (a) Briefly describe a systematic process for function analysis and modeling. 7
(b) How can the customer needs be transformed into a functional map for a product? Discuss briefly. 7

4. (a) Describe subtract and operate procedure. 7
(b) What are the tools of bench marking in product development and design ? Explain any one in detail. 7
5. (a) Contrast strengths and weaknesses of brain storming as a concept generality method. 7
(b) Explain Life Cycle assessment and elaborate on its significance in product design and development. 7
6. (a) How does customer quality relate to engineering quality in terms of evolving a reliable product ? 7
(b) Briefly discuss failure modes and effect analysis (FMEA). 7
7. Write short notes on *any four* of the following : 14
(a) Rapid prototyping
(b) Design for X
(c) Value Analysis
(d) ISO 14000
(e) Role of soft computing in product design
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