

GANAPAT UNIVERSITY
M.Tech. (ME.-AMT) Sem.-II Examination June 2012
3ME203-Product Design

[Time: 3 Hours]

[Total Marks: 70]

Instructions:

- (1) Attempt all questions.
- (2) Figures to the right indicate full marks for the question.
- (3) Section-I and Section-II should be written in separate answer books.
- (4) Support your answers with sketches/diagrams wherever possible.

SECTION-I

Que: 1

- (a) Discuss the factors that are important in developing a new technology oriented product. [5]
- (b) Write a survey that what customers want in washing machine. [4]
- (c) Discuss the characteristics of an environmentally responsible design. [3]

OR

Que:1

- (a) With suitable example, discuss the concept development process. [6]
- (b) What do you mean by Bench marking? Discuss the important steps for Bench marking. [6]

Que: 2

- (a) Define value analysis/value engineering. Explain value analysis procedure. [6]
- (b) Identify the factors which should be taken into consideration while locating controls and displays. [5]

OR

Que: 2

- (a) What are the characteristics of a Man – Machine System? Discuss general considerations for the design of Man-Machine System. [6]
- (b) Discuss the role of aesthetics in product design with appropriate illustrations. [5]

Que: 3

Write short notes on the following.

1. "Concurrent Engineering" as modern approach to product design.
2. Structural and Functional human body dimensions.
3. Product Life Cycle.

[12]

SECTION-II

Que: 4

- (a) What do you understand by DFA? State and explain general guide lines for DFA.. [6]
- (b) Discuss the chief advantages and disadvantages of plastic gears. [6]
State where the plastic gears are actually used.

OR

Que:4

- (a) With neat sketches compare the ergonomic aspects of Motor bike and Scooter (with respect to display and control). [6]
- (b) Discuss factors to be considered while selecting "Die casting" as a process of manufacturing. [6]

Que: 5

- (a) Explain the principles of Rapid Prototyping. With neat sketch, explain Stereo Lithography (SLA). [6]
- (b) Explain Laminated Object Manufacturing (LOM) as method of Rapid prototyping. [5]

OR

Que: 5

- (a) What is Rapid Prototyping? Discuss the advantages and applications of Rapid Prototyping. [5]
- (b) What do you understand by DFM? Explain the general guide lines of DFM giving example. [6]

Que: 6

- Write short notes on the following. [12]
1. Product Design and Product Development.
 2. Reasons for poor value.
 3. Importance of Geometric Dimensioning and Tolerancing (GD&T) for the product design.