

Total No of Questions: [XII]

SEAT NO. :

[Total No. of Pages : II]

B.E. (MECHANICAL) 2008
PRODUCT DESIGN AND DEVELOPMENT (402044B)
(Elective - I) (Semester -I)

Time: 3 Hours

Max. Marks : 100

Instructions to the candidates:

- 1) **Answers to the two sections should be written in separate answer books.**
- 2) **Neat diagrams must be drawn wherever necessary.**
- 3) **Figures to the right side indicate full marks.**
- 4) **Assume Suitable data if necessary**

SECTION I

UNIT-I

- Q1) What is Product Design? Differentiate between Product Design and Product Development. Explain in detail various factors affecting the Product Design. [18]

OR

- Q2) a) Explain the relationship of Standardization and Specialization with Product Design. [09]
- b) Discuss in detail seven steps Morphology of Product Design. [09]

UNIT-II

- Q3) What is Technology Forecasting? Discuss importance? Explain Delphi Method and Technology S-curve in detail. [16]

OR

- Q4) Define different types of customer needs and explain in detail. Discuss any three techniques used for collection of customer needs. [16]

UNIT-III

- Q5) Explain in detail how FAST Method and Subtract and Operate procedure helps in better functional modeling of product. [16]

OR

- Q6) a) Explain the concept of Augmentation and Aggregation in functional modeling. [08]
- b) Elaborate the concept of Failure Modes and Effects Analysis. [08]

SECTION II

UNIT-IV

- Q7) What is Product Tear down? How it is employed in Reverse Engineering? Explain [18]

stepwise detailed procedure of Product Tear Down.

OR

- Q8) Discuss the necessity of Benchmarking in Product Design. Explain step wise procedure for Benchmarking. Explain any one tool used in Bench marking. [18]

UNIT-V

- Q9) a) Explain the guidelines for Design for Assembly. [08]
b) Explain the guidelines for Design for Manufacture. [08]

OR

- Q10) a) Explain the application of Weighed Sum Assessment method in Product Design. [08]
b) Explain the concept of Product Validation. [08]

UNIT-VI

- Q11) What is Product Life Cycle Management? Explain the concept in detail. Discuss the various elements of PLM in detail. [16]

OR

- Q12) What is Product Life Cycle? Explain with suitable example. Discuss various phases of Life Cycle and corresponding technologies applied. [16]