

Total No. of Questions : 12]

SEAT No. :

P735

[Total No. of Pages : 2

**[4659] - 36**

**B.E. (Mechanical) (Semester - I)**  
**PRODUCT DESIGN AND DEVELOPMENT (Elective - I (b))**  
**(2008 Pattern)**

*Time : 3 Hours]**[Max. Marks : 100**Instructions to the candidates :*

- 1) *Answer any three questions from each section.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Use of logarithmic tables slide, rule, mollier charts, electronic pocket calculator is allowed.*
- 6) *Assume suitable data, if necessary.*

**SECTION - I**

- Q1)*** a) Explain morphology of product design? [10]  
 b) Discuss the various factors in product design? [8]

OR

- Q2)*** a) What is product design? Write its evolution and innovation? [10]  
 b) Distinguish between product verification and product validation? [8]

- Q3)*** a) What is Technology forecasting? Write in detail technology S curve? [8]  
 b) Explain in detail customers needs and satisfaction? [8]

OR

- Q4)*** a) What is product design? Explain in detail steps involved in it? [8]  
 b) Why there is need of market analysis? [8]

**P.T.O.**

- Q5)** a) Distinguish between product development and process development? [8]  
 b) Write in detail product development with suitable example? [8]

OR

- Q6)** a) What is product benchmarking? Explain steps involved in product benchmarking? [8]  
 b) Explain in detail functional modeling and decomposition? [8]

## **SECTION - II**

- Q7)** a) What is Reverse Engineering? Write its advantages and limitations? [10]  
 b) Explain in detail step involved in product teardown process? [8]

OR

- Q8)** a) Write in detail benchmarking approach and tools used in benchmarking? [10]  
 b) Explain the need of product portfolio and architecture? [8]

- Q9)** a) What is design for manufacturing? Write its steps in detail? [8]  
 b) Explain in detail DFE method and its application [8]

OR

- Q10)** a) What is concept of life cycle assessment? Explain its types in detail? [8]  
 b) Explain various methods to reduce environmental impact? [8]

- Q11)** a) Write short notes on [8]  
 i) Concept of Product life cycle  
 ii) Concept of PLM  
 b) Write in detail different phases of product life cycle [8]

OR

- Q12)** a) Distinguish between product data and product workflow [8]  
 b) What is importance of product data management in industry? [8]

