

Total No. of Questions : 10]

SEAT No. :

**P3278**

**[5670]-547**

[Total No. of Pages : 2

**B.E. (Mechanical Engineering)**

**PRODUCT DESIGN AND DEVELOPMENT**

**(2015 Pattern) (Semester - II) (Elective - IV) (402050C) (End Sem.)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) Answer Q.1 or 2, Q.3 or 4, Q.5 or 6, Q.7 or 8, Q.9 or 10.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Assume suitable data if necessary.

**Q1) a)** Enlist and explain Modern approaches to product design. **[6]**

b) Explain Black box model for understanding the customer needs. **[4]**

OR

**Q2) a)** For an appropriate product discuss the concept of economic analysis. **[6]**

b) Explain concept of product testing. **[4]**

**Q3) a)** What is mean by Concept Embodiment explain with suitable example. **[8]**

b) List activities in typical product development process. **[2]**

OR

**Q4) a)** Construct Pugh's Matrix for Mobile handset by considering four variants and five factors. **[8]**

b) Which are five steps to identify customer needs. **[2]**

**Q5) a)** What is product tear down process? Explain the steps involved in product tear down process. **[10]**

b) Explain force flow diagram? Draw force flow diagram for any one application. **[8]**

OR

**Q6) a)** What is subtract and operate procedure? Explain the steps involved in subtract and operate procedure. **[10]**

b) Explain any two product architectures. **[8]**

**P.T.O.**

- Q7)** a) Explain various DFMEA guidelines with suitable example. [8]  
b) Explain concept of robust design with suitable example. [8]

OR

- Q8)** a) Discuss the stepwise procedure for Benchmarking. [8]  
b) Discuss in detail function form diagram with suitable example. [8]

- Q9)** a) With suitable example Explain the weighed sum assessment method. [8]  
b) Explain the role of vendors and customers in PLM implementation. [8]

OR

- Q10)** a) Discuss following Concept in Detail : [10]  
i) Concept of Product Life Cycle with Example.  
ii) Benefits and Applications of Product Life Cycle.  
iii) Emergence of Product Life Cycle Management.  
iv) Significance of Product Life Cycle Management.  
b) List various activities in process of detailing of design. [6]

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