

Total No. of Questions : 10]  
P3410

SEAT No. :   
[Total No. of Pages : 2

**[5561]-548**  
**B.E. (Mechanical Engineering)**  
**PRODUCT DESIGN AND DEVELOPMENT**  
**(2015 Pattern) (Elective - IV) (Semester - II)**

*Time : 2.½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates :*

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

- Q1)** a) With suitable example explain Product Verification and Product Validation. [6]  
b) For an appropriate product discuss the concept of economic analysis.[4]

OR

- Q2)** a) With suitable examples discuss different types of Customer needs in detail. [6]  
b) Explain concept of Concurrent Engineering useful in modern Product development. [4]
- Q3)** a) Explain Function tree of standard coffee making machine using subtract and operate procedure [8]  
b) What are design drivers. [2]

OR

- Q4)** a) Construct Pugh's Matrix for Mobile handset by considering four variants and five factors. [8]  
b) Explain uses of Product testing. [2]

**P.T.O.**

**Q5)** a) Discuss in detail the process of Product Tear down with suitable example. [10]

b) Discuss detail procedure of Benchmarking with suitable example. [8]

OR

**Q6)** a) Which are different types of product portfolio architecture and how to choose the type architecture for particular product. [10]

b) How to set product specifications based on the benchmarking. [8]

**Q7)** a) Explain how reliability is ensured during design state. [8]

b) Discuss various guide lines of Design for assembly and explain their significance. [8]

OR

**Q8)** a) With suitable example explain environmental concerns implemented in product design. [8]

b) Explain process of Product Life Cycle assessment with example and what design strategies are used for extending product life cycle. [8]

**Q9)** a) Which are different phases of product life cycle and various technologies applied in PLM. [8]

b) Explain three major subsystems of product life cycle management tool. [8]

OR

**Q10)** a) Explain significance of customer involvement in the process of detail design with suitable example. [8]

b) Discuss the concept of product workflow and explain link between product data and product workflow with example. [8]

