

[Total No. of Questions - 8] [Total No. of Printed Pages - 2]  
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**M. Tech 3rd Semester Examination**  
**Product Design & Development**  
**PEE-E24**

**Time : 3 Hours**

**Max. Marks : 100**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Attempt Five questions out of eight questions. Each question carries equal marks.

1. (a) Differentiate between invention and innovation? Support your view with examples. (10)
- (b) Explain in brief the difference between industrial product and domestic product? (10)
2. (a) Discuss the importance of aesthetics in product design. (10)
- (b) Does reliability of the product has any effect on cost of the product? (10)
3. The fixed cost of a manufacturing company producing voltage stabilizers is Rs. 150000 and the variable cost per unit is Rs. 250. The selling price of voltage stabilizers is Rs. 400 per unit. Calculate the breakeven point. If the company is producing 1500 voltage stabilizers, calculate the Profit and margin of Safety. Also calculate the revised Break Even Point when
  - (i) The company reduces the Fixed Cost to Rs. 120000.
  - (ii) The company reduces the Variable Cost to Rs. 200 per unit.
  - (iii) The company increases the selling price to Rs. 450 per unit. (20)

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4. (a) What kind of interaction is required between the design department and marketing department? (10)
- (b) What factors need to be considered while designing for packaging of the product? (10)
5. (a) Describe the role of designer in an organization. (10)
- (b) Discuss in detail the producibility requirements in the casting design for economic molding. (10)
6. What is value analysis? Discuss in brief the various steps of value analysis. (20)
7. (a) What is Quality Function Deployment? Discuss its importance in Product Design. (10)
- (b) Explain Stereo lithography with the help of a neat sketch. (10)
8. Write short notes on:
  - (i) Importance and measurement of Value.
  - (ii) The influence of economic factors on product design. (2×10=20)