

[Total No. of Questions - 8] [Total No. of Printed Pages - 2]
(2125)

15404

M. Tech 3rd Semester Examination
Product Design & Development (NS)

PE-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 any five questions.

1. (a) Discuss the various essential factors of product design.
(b) Describe the role of allowance and tolerances in detailed design and assembly. (20)
2. (a) Discuss the factors to be considered important for design for manufacturing.
(b) Discuss in detail the producibility requirements in the forging design. (20)
3. (a) Discuss in detail, how the economic analysis of a new product is carried out.
(b) What do you understand by design for safety and reliability? Discuss. (20)
4. (a) Discuss the concept of value engineering. How materials and processes are selected in value engineering?
(b) Discuss the various types of Value. How the value of a product is measured? (20)

2

15404

5. (a) What is Reverse engineering? Discuss its relation with product design.
(b) Explain Selective laser sintering with the help of a neat sketch. (20)
6. (a) How the reliability of a product does effects the cost of manufacturing and cost of operations of a product?
(b) Discuss in brief the morphology of design. (20)
7. The fixed cost of a manufacturing company producing voltage stabilizers is Rs. 200000 and the variable cost per unit is Rs. 200. The selling price of voltage stabilizers is Rs.500 per unit. Calculate the breakeven point. If the company is producing 1500 voltage stabilizers. Calculate the Profit and margin of Safety. 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. 150 per unit.
 - (iii) The company changes the selling price to Rs.450 per unit. (20)
8. Write short notes on
 - (i) Role of rapid prototyping in Industrial Design.
 - (ii) Design by innovation and design by imitation. (20)

[P.T.O.]