

Reg. No.

Question Paper Code

11619

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022

Fifth Semester

Mechanical Engineering

20MEEL509 - PRODUCT DESIGN AND DEVELOPMENT

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. State the benefits of IPPD. | 2,K1,CO1 |
| 2. Define Behavior analysis. | 2,K1,CO1 |
| 3. What do you mean by problem decomposition? | 2,K2,CO2 |
| 4. What is the purpose of ranking? | 2,K2,CO2 |
| 5. Define product variety. | 2,K2,CO3 |
| 6. List the types in modularity. | 2,K2,CO3 |
| 7. Interpret the necessity of the use of integrating CAE/CAD/CAM. | 2,K2,CO4 |
| 8. List the steps involved in Industrial Design. | 2,K2,CO4 |
| 9. List the steps involved in reducing the cost of components. | 2,K2,CO5 |
| 10. What are all the purposes of prototyping? | 2,K2,CO5 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) With a neat flow chart explain product life cycle management. 13,K2,CO1
- OR**
- b) Define behavior analysis. Explain it with respect to competitor and customer. 13,K2,CO1
12. a) Explain the concept generation and five step method. 13,K2,CO2
- OR**
- b) Explain concept screening and scoring with suitable example. 13,K2,CO2
13. a) Explain the steps involved in establishing product architecture. 13,K2,CO3
- OR**
- b) Illustrate the different types of modularity. 13,K2,CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

11619

14. a) Summarize the importance of ergonomic and aesthetic needs in ID with suitable examples. 13,K2,CO4

OR

- b) Demonstrate in detail the robust design with suitable example. 13,K2,CO4

15. a) List down and explain the steps involved in estimation of manufacturing costs. 13,K2,CO5

OR

- b) List down the factors involved in maximizing the ease of assembly. 13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) Infer the corporate identity of a Royal Enfield motorcycle with a customer sheet. 15,K2,CO6

OR

- b) Plan a schematic for a wrist watch, using only functional elements- explain. 15,K2,CO6