

**Chapter No. 1 Product Development**

**Questions for 2 Marks**

1. List customer need identification
2. Define product development
3. Define product design
4. List principles of Good Product Design
5. State any two principles of Good Product Design
6. Define design by evolution & design by innovation
7. List phases of Process Development **or** The 7 stages of new product development
8. State any two stages of new product development **or** phases of Process Development
9. State any two concept development process
10. Draw five step concept generation
11. Draw concept classification tree

**Questions for 4 Marks**

1. Explain any two key characteristics of a successful product development process
2. How does customer need identification impact product development
3. Explain any two with examples principles of Good product design
4. Differentiate between design by the evolution and design by innovation
5. Explain the main phases of the product development process are.
6. Draw and explain the flow chart of product development
7. Describe the Tyco product development process and how it differ from the generic model
8. List and briefly explain the different phases of the Concept development process
9. What is a concept classification tree? Give an example
10. How is a concept combination table used in developing product concepts?
11. Explain the seven step method for testing a product concept
12. What is the difference between concept screening and concept scoring? When is each used?

**Chapter No. 2 Product Architecture**

**Questions for 2 Marks**

1. Define product architecture
2. State the types of key Aspect of product architecture
3. State the types of product architecture
4. State the types of Modular product architecture
5. List down steps to establish product architecture
6. Define Ergonomics
7. Define aesthetic in design
8. List the main aspects of aesthetics in product design
9. What is the key design considerations for a knob & toggle switch used in a control?
10. State the ergonomic consideration for designing levers and hand wheels

**Questions for 4 Marks**

1. Define product architecture and explain its significance in product design
2. Differentiate between modular and integral product architecture with suitable example
3. List and explain the different types of modular architecture
4. Describe the steps for establishing product architecture
5. Give an example of product architecture using a trailer
6. How does poor ergonomic design affect product usability and safety?
7. Differentiate between qualitative and quantitative display with example
8. How does user comfort influence ergonomic design?
9. Why is aesthetic considered an important aspect of product development?
10. How do form and symmetry contribute to a product's visual appeal?
11. Explain how color, proportion and surface finish impact product perception

**Chapter No. 3 Industrial Design****Questions for 2 Marks**

1. Define industrial design. Write any two purpose / goal of industrial design
2. State key principles of industrial design
3. State any two process of industrial design
4. State tool used in industrial design
5. List benefits of good industrial design
6. Define Design for manufacturing (DFM)
7. State objective of DFM
8. State any two key principles of DFM with example
9. State any four advantages of DFM

**Questions for 4 Marks**

1. Explain why industrial design is important in product development
2. Describe the stages of the industrial design process
3. Write any four applications of industrial design
4. Differentiate between industrial design & product design
5. Define Design for manufacturing (DFM) & State its objectives.
6. Explain any four key steps involved in the DFM process
7. Explain DFM guidelines by Manufacturing Method