

19/05/2025 BE MECHANICAL SEM-VIII C-SCHEME PDD QP CODE: 10084055

3 hours

80 Marks

Instructions:

1. **Question Number 1 is Compulsory**
2. Attempt **ANY THREE** Questions out of remaining **FIVE**
3. Use illustrative diagrams wherever required

Q1) Attempt any FOUR questions

- a) What is the need of new product development in the world? **05**
- b) What Is Product Architecture? **05**
- c) Draw the flow chart of Concept Development Process in the product design. **05**
- d) Why it is necessary to integrate the basic forms and elements of a product like balance, rhythm and proportion? **05**
- e) What are the principles of Design for Manufacturing and Assembly (DFMA)? **05**
- f) List ANY FIVE Prototyping techniques used in manufacturing a product. **05**

Q2) a) Explain SIX steps/phases of the Generic product development process with flow chart. **10**
b) Define market research. List and explain the methods of market research required in the product design and development. **10**

Q3) a) What do you mean by concept selection? Explain concept screening and concept scoring methodology giving example. **10**
b) What Is Product Architecture? Explain the Steps in developing product architecture. **10**

Q4) a) Explain the process of identifying customer needs in concept development process. **10**
b) What is Quality Function Deployment (QFD)? Explain the phases of QFD. **10**

Q5) a) Draw House of Quality (HoQ) and highlight the customer matrix part in (HoQ)? Explain Voice of the Customer as an input to QFD. **10**
b) Define creative thinking. List any FIVE Creativity and problem-solving methods. Explain the Brainstorming Technique used in product development. **10**

Q6) a) What is balance, rhythm and proportion? Explain the importance of these elements in product design and development giving examples. **10**
b) Write short notes on Design for Environment and Design for Serviceability. **10**
