

- Note: 1. Q1 is compulsory
2. Solve any three from remaining

- Q1 Solve **any four** questions **20**
- A. Role of science & Technology in Sustainable design of products
 - B. Simultaneous engineering
 - C. Explain Product design for Environment.
 - D. What is PLM? State its need and scope and phases.
 - E. What is digital mockup? State its benefits and list software used for it.
- Q.2 A. What do you mean by Design for X. How will you use design for X tools in the design process? **20**
- B. Explain useful life extension strategies.
- Q.3 A. Explain the general framework of LCCA. **20**
- B. What is sustainable development? Explain role of science & technology in it.
- Q.4 A. Discuss new product development process **20**
- B. Explain cost analysis and life cycle approach in detail.
- Q.5 A. Explain the strategies for recovery at the end-of-life cycle **20**
- B. What is the virtual product development process? Write its applications and advantages.
- Q.6 A. Explain the product life cycle in detail with suitable example **20**
- B. Explain various reasons for implementation of PDM system. Explain various barriers for PDM implementation