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(2124)

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**M. Tech 3rd Semester Examination  
Product Design and Development**

**PEE-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 5 questions. All questions carry equal marks

1. (a) Provide production consumption cycle with a suitable example of the product.  
(b) What is the role of allowances, process capability and tolerances in detailed design and assembly? (20)
2. (a) What is product life cycle and process life cycle, explain how they are connected?  
(b) Explain the role of process engineer, also from the point of view of ease in machining with an example. (20)
3. (a) What do you understand by value engineering? What are advantages of value engineering? Discuss with a case study.  
(b) Discuss the steps in value engineering taking an example of a consumer product. (20)
4. Discuss the design considerations for the following parts along with the applications of the item:-
  - (i) Forged parts.
  - (ii) Casted parts.
  - (iii) Powder metallurgical parts. (20)

**[P.T.O.]**

5. (a) Explain various environmental objectives used in the design for the environment.
  - (b) Explain role of Aesthetics in Product Design. (20)
  6. (a) Discuss how economic factors influence the product design with an example.
  - (b) Explain the diagram of "Production cost analysis breakdown". (20)
  7. Write short notes on the following with a suitable example.
    - (i) Concurrent Design
    - (ii) Quality function deployment (20)
  8. (a) Discuss reverse engineering, equipments/tools used along with example.
  - (b) What is RPT? Discuss about different types of PRT technologies. Also provide the applications. (20)
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