

[Total No. of Questions - 8] [Total No. of Printed Pages - 2]  
(2\*23)

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M. Tech 3rd Semester Examination

Product Design & Development

PE-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 any five questions. Each question carries equal marks.

1. Explain the seven phases of morphology of design process?  
What is the difference between primary and secondary phase?  
(20)
2. Explain the Role of aesthetics in product design. (20)
3. Write note on:
  - (a) Role of process engineer.
  - (b) Ease of location and clamping. (20)
4. Discuss in detail about break even analysis. Explain about Samuel Eilon model. (20)
5. Discuss the role of materials, design, process and supplier in enhancement of value? Why does the value of a part reduce with increasing weight? Why small parts have a higher cost per kg than larger parts? What is 'comparative analysis' technique? Explain. (20)
6. Write note on:
  - (a) Selective laser sintering.

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- (b) Laminated object manufacturing.
  - (c) Stereo Lithography.  
Write applications of RPT in today's world. (20)
7. What are expanded metal products? What are the advantages? How can be achieve complex shapes by power metallurgical process? (20)
8. What are the various steps of value analysis job plan? Describe the following steps of a VA job plan.
- (a) Information step
  - (b) Analysis step
  - (c) Creative step
  - (d) Use of preliminary
  - (e) Use of preliminary judgement
  - (f) Evaluation. (20)