



Name :

Roll No. :

Invigilator's Signature :

**CS/M.TECH(IE&M)/SEM-2/IEM-203/2010
2010**

PRODUCT DESIGN & DEVELOPMENT

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* questions.

5 × 14 = 70

1. Illustrate the product / product-type system development process from planning to prototype development and testing with an example. 14
2.
 - a) Describe the steps involved in DFM. 7
 - b) State the methods to enhance the ease of assembly of products and the measurement of DFA. 7
3.
 - a) What is target costing and how does it influence the manufacturing cost decisions and control its elements ? 4 + 5
 - b) Discuss on the practice of 'Design for X'. 5
4. Explain Signal to Noise Ratio.
In a building construction site a new mixing process was introduced to increase the compression strength of the cement concrete. The following result was obtained :

Original	65	68	62	60
New	79	69	67	65

Using the S/N ratio of "Larger the Better concept" find how much is the difference. 14



5. a) What is 'Concurrent Engineering' ? Explain about the different names of it.
- b) What are the differences between Traditional Engineering and Concurrent Engineering for product design and development ?
- c) What are the factors related to the product as well as company for successful implementation of Concurrent Engineering ? 5 + 3 + 6
6. a) What are the objectives of Concurrent Engineering ?
- b) Explain about the Concurrent Engineering Culture.
- c) Explain about the various classes of models for product design and development. 3 + 5 + 6
7. a) What do you understand by Rapid Prototyping ?
- b) What are the various classification of Rapid Prototyping techniques ?
- c) What are the applications of Rapid Prototyping techniques ?
- d) Explain the different methods of rapid tooling. 4 + 3 + 3 + 4
8. Write notes on any *two* : 2 × 7
- a) Robust design and Taguchi Method
- b) Parameter Design
- c) Tolerance Design
- d) Reverse Engineering.
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