

Reg. No. :

--	--	--	--	--	--	--	--	--	--

**Question Paper Code: 22014**

M.E. DEGREE EXAMINATION, MAY 2014.

Second Semester

CAD / CAM

01PCD204 - INTERGRATED PRODUCT DESIGN AND PROCESS DEVELOPMENT

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What are the tools used to identify the customer requirements in product design?
2. State the various generic product development processes.
3. When are product specifications established? Differentiate target specification from final specification.
4. List out the benefits of structural approach for concept generation.
5. What is meant by portfolio architecture and what are the properties of portfolio architecture?
6. What is clustering in product architecture?
7. Define the term robust design.
8. With an example, show how industrial design helps in creating corporate identity.
9. Write some of the factors that influence the product design.
10. What is DFM? How the DFM is useful throughout the product development process?

PART - B (5 x 14 = 70 Marks)

11. (a) (i) Create a product technology road map for a new air conditioner development using available technologies. (7)

(ii) How the interactions with customers are documented? Explain in detail. (7)

Or

(b) Explain in detail about the product development organization by giving emphasis on functional organization, project organization and matrix organization. (14)

12. (a) (i) Explain in detail about major activities of concept development process with suitable example. (7)

(ii) Write short notes on the following terms that are applicable to concept generation. 1. Clarify the problem 2. Search externally and internally. (7)

Or

(b) Explain how the concept selection is useful in making decision regarding offering a single product or different products option to the market place with suitable illustrations and examples. (14)

13. (a) Explain how portfolio architecture differ for different segment of customers. Consider the case of a mobile manufacturer who offers a wide range of products for different values to validate your answer. (14)

Or

(b) (i) How are the product architecture classified and explain each of them with their advantages and limitations. (7)

(ii) Give a detailed account of any one of the advanced methods available in creating detailed interface specifications. (7)

14. (a) (i) Explain the function of CAM tools in an industrial design with suitable illustrations and examples. (7)

(ii) What makes a design robust? What are the advantages and disadvantages of a robust design. (7)

Or

- (b) (i) Explain the design processes involved in design of new products with proper priority to materials selection in industrial design. (7)
- (ii) Explain with examples, how the technology influence the manufacturing cost of the driven product. Provide one example for increase and decrease in product cost. (7)
15. (a) Explain in detail about project execution. Discuss the influence of qualitative factors on success of the project with an example. (14)

Or

- (b) Explain the three phases of prototyping. Discuss a prototyping plan for investigating the design of a surface to air missile to be introduced in defence. (14)

PART - C (1 x 10 = 10 Marks)

16. (a) “The customers are the drivers for new product development and innovation” - consider the case of either Nokia or Apple- iPod and explain the above statement. (10)

Or

- (b) Most toasters today have almost same external appearance. Novel or unusual features should result in marketing advantages. Explain how you could integrate a design process, a toaster that would provide toast with the owner’s initials or name legibly shown on each piece of toast. This new feature should not increase the cost of the toaster materially. Sketch your integrated design process and estimate the increase in the unit cost as a result of the new feature. (10)
-

