

Roll No.

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

B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2014

MECHANICAL ENGINEERING (TAMIL MEDIUM)

VIII Semester

MF9021 PRODUCT DESIGN AND DEVELOPMENT

(Regulation 2008)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Who all form the extended team in Product Development Team?
2. What are the challenges involved in Product Development?
3. State four steps involved in establishing target specifications.
4. What are the common dysfunctions during concept generation?
5. State the methods of communicating the concepts.
6. What are the different approaches used in concept selection?
7. What are the goals of Industrial Design?
8. How do you arrive at the total manufacturing cost?
9. What are the four uses of Prototyping?
10. What are the four elements of economic analysis in product development?

Part – B (5 x 16 = 80 marks)

11. What are the steps involved in identifying Customer Needs? With an example show how a mission statement is defined? **State all the steps** involved in gathering Raw data, interpreting raw data, organizing the needs into hierarchy, ranking the relative importance and results are reviewed for product development. (16)
12. a) State the five steps involved in Product Concept Generation Process. Enumerate all the steps involved in detail with an example of your choice. (16)
(OR)
b) What are the three major steps involved in Product Specification process. Explain with any one example all the major steps and their sub steps involved in arriving at final product specification. (16)
13. a) What are the six steps involved in concept selection process? Taking the example as reusable syringe or any other product of your choice, explain how you will perform all the steps involved in selecting the best concept? (16)
(OR)
b) Taking the example of HP Deskjet Printer explain on how you will establish modular product architecture by decomposing them into systems, sub systems and incidental interactions? (16)

Roll No.

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

14. a) (i) How do you assess the quality of Industrial Design? (10)
(ii) With examples explain on how products are classified from Industrial Design point of view? (6)
- (OR)**
- b) State the five steps involved in Design For Manufacturing Process? Explain all the sub steps involved in each of the steps in DFM with an example. (16)
15. a) (i) Differentiate (a) Physical and Analytical Prototypes and
(b) Focused and Comprehensive prototypes
with examples for each. (10)
(ii) What do you mean by virtual prototyping? Explain their uses and advantages. (6)
- (OR)**
- b) Discuss all the factors performed while carrying out economic analysis during product development elaborately with a case study. (16)