

337744(37)

B. E. (Seventh Semester) Examination,

April-May 2020/ NOV-DEC 2020

(New Scheme)

(Mech., Mechatronics Engg. Branch)

PRODUCT DESIGN & DEVELOPMENT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Answer all the questions. Part (a) is compulsory.

Answer any two parts from (b), (c) and (d).

Unit-I

1. (a) Define product development. 2
- (b) What is meant by concept generation? Explain five step methodology for concept generation with diagram. 7

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- (c) How customer needs are identified? Explain the procedure. 7
- (d) What is meant by product architecture? Explain the procedure for establishing product architecture. 7

Unit-II

2. (a) What is the difference between Value Engineering and Value analysis? 2
- (b) Define Morphology. Explain morphological analysis with diagram for generating alternatives. 7
- (c) Explain template for House of Quality with diagram. 7
- (d) Discuss product concept testing process with a suitable example. 7

Unit-III

3. (a) Define DFA. 2
- (b) What is meant by DFM? Explain the procedure with diagram. 7
- (c) Explain the steps in the Industrial design process. 7
- (d) What are different types of prototypes? Explain. 7

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Unit-IV

4. (a) What is meant by Anthropometry? 2
- (b) Discuss the need for Management of Technology in Product development. 7
- (c) Explain ergonomic and esthetic needs in product design. 7
- (d) Explain the significance of Product Packaging and Graphical design. 7

Unit-V

5. (a) What is meant by Trade Mark? 2
- (b) Explain statistical tools and techniques for Managing the Project. 7
- (c) Explain Gantt chart and Design Structure Matrix. (DSM) 7
- (d) Explain copyrights, patents, legal issues in product design. 7