

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/Backlog), April-May 2016

B. Tech in Mechanical Engineering, Semester VI

Roll No.....

ME 628: Product Design & Development

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A Objective type multiple choice questions (10 questions @ 1 mark)

10

- i. _____ is the development of original products, product improvements, product modifications, and new brands through the firm's own R&D efforts.
(a) Idea generation; (b) Concept testing; (c) Test marketing; (d) New product development
- ii. All of the following are accurate descriptions of ways companies are anxious to learn how to improve the odds of new-product success, except which one?
(a) Find out what successful new products have in common.
(b) To learn lessons from new product failures.
(c) Companies have to learn to understand their own consumers.
(d) Do not overly rely on product innovation when you can succeed by copying others.
- iii. _____ is the systematic search for new-product ideas.
(a) Idea generation; (b) Idea screening; (c) Concept development and testing; (d) Marketing strategy development
- iv. Major sources of new product ideas include _____.
(a) internal sources, using company R&D; (b) creative approaches;
(c) interacting with customers; (d) all of the above are sources of new product ideas
- v. _____ involves a review of the sales, costs, and profit projections for a new product to find out whether they satisfy the company's objectives.
(a) Idea generation; (b) Idea screening; (c) Business analysis; (d) Concept development and testing
- vi. In the product concept stage of new-product development, the product is merely a _____.
(a) word description; (b) crude mock-up; (c) drawing; (d) all of the above
- vii. _____ begins when the company finds and develops a new-product idea. During product development, sales are zero and the company's investment costs mount.
(a) Introduction; (b) Growth; (c) Maturity; (d) Product development
- viii. _____ is a period of slow sales growth as the product is introduced into the

market. Profits are non-existent in this stage because of the heavy expenses of product introduction.

- (a) Growth; (b) Product development; (c) Maturity; (d) Introduction
- ix. _____ is a period of market acceptance and increasing profits.
(a) Product development; (b) Maturity; (c) Growth; (d) Introduction
- x. _____ is the course of a product's sales and profits over its lifetime, involving five distinct stages: product development, introduction, growth, maturity, and decline.
(a) Product life cycle; (b) Maturity; (c) Growth; (d) Decline

Q.2 Short answer type questions (4 questions @ 2.5 marks) 10

- i. Name any two types of product development projects?
- ii. Give examples of any two quick development products.
- iii. Give example of any two technology push products.
- iv. What is the English full form of the Russian acronym TRIZ?

Q.3A Make a diagram showing the product planning process. 05

Q.3B What do you understand by technology S-curve? Explain with a suitable example. 05

Q.4A What are the steps in identifying customer needs for a product development? 05

Q.4B Describe various steps necessary to establish target specifications of a product being developed. 05

Q.5A What is the difference between functional and project organizations in terms of their strengths and weaknesses? 05

Q.5B What is TRIZ? Mention any two principles of TRIZ with suitable examples. 05

Q.6A List the important things we need to care while evaluating a fundamentally new product opportunity? 05

Q.6B What are the components of a product lifecycle? Explain with the help of a graph. 05

OR

Q.6B What are the benefits of choosing a structured method of product development? 05

Q.7A Make a product change matrix of the extent of product and process changes. 05

Q.7B What do you mean by product differentiation? Explain the role of reverse engineering in this context. 05

OR

Q.7B Make a concept classification tree for a less fuel consuming automobile. 05

Q.8A By taking an example of a product of your choice, mention the details of concept generation step of the product development. 10

Q.9A What is the market research? What are the main tasks associated with market research, explain with the help of an example. 10

Q.9B What is the concept selection? What are the main tasks associated with concept 10

selection? Explain with the help of a suitable example.

OR

Q.9B What is concept development and how is it different than the concept selection? 10
Explain with a suitable example.