

**POSTAL**  
**Book Package**

**2027**

**GATE • PSUs**  
**PRODUCTION AND**  
**INDUSTRIAL ENGINEERING**  
**Objective Practice Sets**

<b>Industrial Engineering</b>	<i>Contents</i>
<b>Sl. Topic</b>	<b>Page No.</b>
1. Product Design and Development .....	2
2. Work System Design .....	8
3. Facility Design .....	23



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# Product Design and Development

## MCQ and NAT Questions

- Q.1** \_\_\_\_\_ 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
- Q.2** New Product Development starts with
- (a) Marketing Strategy Development  
(b) Concept Development and Testing  
(c) Idea Screening  
(d) Idea Generation
- Q.3** Major sources of new product ideas include \_\_\_\_
- (a) Internal sources, using company R&D  
(b) Creative approaches, using both "method and madness" approaches  
(c) Watching and listening to customers  
(d) All of the above
- Q.4** Designs are periodically modified to
- (a) Improve product performance  
(b) Strive for zero-based rejection and waste  
(c) Make products easier and faster to manufacture  
(d) All of the above
- Q.5** Life-cycle engineering is also called
- (a) Green design (b) Expensive design  
(c) Easy design (d) None of the above
- Q.6** The life cycle of a product includes
- (a) Extraction of Natural Resources  
(b) Processing of Raw Materials  
(c) Manufacturing of Products  
(d) All of the above
- Q.7** \_\_\_\_\_ is a new-product development approach in which one company department works to complete its stage of the process before passing the new product along to the next department and stage.
- (a) Simultaneous Product Development  
(b) Product Life-Cycle Analysis  
(c) Sequential Product Development  
(d) Team-based Product Development
- Q.8** A detailed version of a new idea stated in a meaningful customer terms is called a \_\_\_\_.
- (a) Product Concept (b) Product Proposal  
(c) Product Idea (d) Product Movement
- Q.9** An attractive idea must be developed into a \_\_\_\_.
- (a) Product Concept (b) Test Market  
(c) Product Strategy (d) Product Image
- Q.10** A \_\_\_\_ is the way consumers perceive an actual or potential product.
- (a) Product Idea (b) Product Concept  
(c) Product Image (d) Test Market
- Q.11** Introducing a new product into the market is called \_\_\_\_
- (a) Test Marketing  
(b) New Product Development  
(c) Experimenting  
(d) Commercialization
- Q.12** During which stage of new product development is management most likely to estimate minimum and maximum sales to assess the range of risk in launching a new product?
- (a) Product Development  
(b) Marketing Strategy Development  
(c) Business Analysis  
(d) Test Marketing
- Q.13** In which stage of PLC, the firm faces a trade-off between high market share and high current profit.
- (a) Introduction (b) Growth  
(c) Decline (d) Maturity
- Q.14** In which stage of the PLC, will promotional expenditures be high in an attempt to react to increasing competition?

- (a) Introduction (b) Decline  
(c) Growth (d) Product Development
- Q.15** Most products in the market place are in the \_\_\_\_ stage of the product life cycle.  
(a) Growth (b) Introduction  
(c) Maturity (d) Decline
- Q.16** Which stage in the PLC normally lasts longer and poses strong challenges to the marketing managers?  
(a) Phase-in (b) Decline  
(c) Maturity (d) Introduction
- Q.17** Which of the following is necessary for successful new product development?  
(a) A customer-centered, team-based, systematic approach.  
(b) A market pioneer mindset and a holistic approach.  
(c) A team-based, innovation-management approach.  
(d) A holistic and sequential product development approach.
- Q.18** Which of the following is not a potential cause of the failure of a new product?  
(a) A poorly designed product  
(b) An underestimated market size  
(c) An incorrectly positioned product  
(d) Ineffective advertising
- Q.19** Which of the following cannot be described by the PLC concept?  
(a) Product Form (b) Product Image  
(c) Brand (d) Product Class
- Q.20** The advantages of standardizing an international product include all of the following except \_\_\_\_  
(a) The adaptation of products to different markets.  
(b) Lower product design costs  
(c) The development of a consistent image  
(d) Lower marketing and manufacturing costs
- Q.21** The cost reduction technique in comparison to the worth of a product is known as  
(a) Reverse Engineering  
(b) Value Engineering  
(c) Material Engineering  
(d) Quality Engineering
- Q.22** Value analysis examines the  
(a) Design of every component  
(b) Method of manufacturing  
(c) Material used  
(d) All of the above
- Q.23** Value analysis is normally applied to  
(a) New products (b) Old products  
(c) Future products (d) Both (a) and (b)
- Q.24** Value can be defined as the combination of \_\_\_\_ which ensures the ultimate economy and satisfaction of the customer.  
(a) Efficiency, quality, service and price  
(b) Efficiency, quality, service and size  
(c) Economy, quality, service and price  
(d) Efficiency, material service and price
- Q.25** Value is the cost directly proportionate to  
(a) Price (b) Function  
(c) Product Material (d) All of the above
- Q.26** Value analysis is a \_\_\_\_ process.  
(a) Remedial (b) Preventive  
(c) Continuous (d) None of the above
- Q.27** Value analysis should be applied when the following symptom(s) is/are present.  
(a) Rate of return on investment is reducing  
(b) Reduction in sales of the product  
(c) Firm is unable to meet delivery promises  
(d) All of the above
- Q.28** The price paid by the buyer is  
(a) Cost Value (b) Use Value  
(c) Esteem Value (d) Exchange Value
- Q.29** The cost incurred by the manufacturer beyond use value is called  
(a) Cost Value (b) Esteem Value  
(c) Exchange Value (d) None of the above
- Q.30** Value engineering can be applied in the following area :  
(a) Construction (b) Process  
(c) Manufacturing (d) All of the above
- Q.31** The term 'value' in value engineering refers to  
(a) Total cost of the product  
(b) Selling price of the product  
(c) Utility of the product  
(d) Manufactured cost of the product

(d) When the part is machined, the tool, holder, workpiece and work holding device do not interfere with one another.

**Q.45** Which of the following is(are) design of manufacturing guidelines for welding of components.

(a) Whenever possible weld together parts of equal thickness.

(b) Locate the welds at areas in design where stresses and or deflections are critical.

(c) Carefully consider the sequence with which parts should be welded together.

(d) Welder or welding machine has unobstructed access to the joint.



**Answers Product Design and Development**

- |               |         |                  |         |                  |         |               |         |         |
|---------------|---------|------------------|---------|------------------|---------|---------------|---------|---------|
| 1. (d)        | 2. (d)  | 3. (d)           | 4. (d)  | 5. (a)           | 6. (d)  | 7. (c)        | 8. (a)  | 9. (a)  |
| 10. (c)       | 11. (d) | 12. (c)          | 13. (b) | 14. (c)          | 15. (c) | 16. (c)       | 17. (a) | 18. (b) |
| 19. (b)       | 20. (a) | 21. (b)          | 22. (d) | 23. (b)          | 24. (a) | 25. (b)       | 26. (a) | 27. (d) |
| 28. (b)       | 29. (b) | 30. (d)          | 31. (c) | 32. (c)          | 33. (d) | 34. (c)       | 35. (c) | 36. (a) |
| 37. (b)       | 38. (b) | 39. (d)          | 40. (d) | 41. (c)          |         |               |         |         |
| 42. (a, b, c) |         | 43. (a, b, c, d) |         | 44. (a, b, c, d) |         | 45. (a, c, d) |         |         |

**Explanations Product Design and Development**

**1. (d)**  
New Product Development is the development of original products, product improvements, product modifications and new brands through the firm's own R&D efforts.

**2. (d)**  
New Product Development always starts with idea generation regarding new product.

**3. (d)**  
New product ideas major sources can be internal sources, using company R&D, watching and listening to customers and creative approaches, using both "Method and Madness" approaches.

**4. (d)**  
Designs are periodically modified to  
(i) Improve product performance.  
(ii) Strive for zero-based rejection and waste.  
(iii) Make products easier and faster to manufacture.  
(iv) Consider new materials and processes that are continually being developed.

**5. (a)**  
The major aim of life-cycle engineering (LCE) is

to consider reusing and recycling the components of a product, beginning with the earliest stage : product design.  
Life-cycle engineering is also called green design or green engineering.

**6. (d)**  
The life cycle involves consecutive and interlinked stages of a product or a service, from the very beginning to its disposal or recycling and includes the following :  
(i) Extraction of natural resources  
(ii) Processing of raw materials  
(iii) Manufacturing of products  
(iv) Transportation and distribution of the product to the customer  
(v) Use, maintenance and reuse of the product  
(vi) Recovery, recycling and reuse of the components of the product

**7. (c)**  
Sequential Product Development is a new-product development approach in which one company department works to complete its stage of the process before passing the new product along to the next department and stage.