

Concept Generation and Selection - MCQs

1. What is the first step in the product development process?

- A) Concept Selection
- B) Concept Generation
- C) Design Refinement
- D) Product Testing

2. Which of the following is NOT a key aspect of the concept generation phase?

- A) Brainstorming
- B) Idea Screening
- C) Design Prototyping
- D) Creativity

3. The "Morphological Box" is used for:

- A) Generating new product ideas
- B) Refining product designs
- C) Screening product concepts
- D) Developing prototypes

4. What method involves generating as many ideas as possible without judgment to stimulate creativity?

- A) Brainstorming
- B) Mind Mapping
- C) SWOT Analysis
- D) PESTLE Analysis

5. The term "concept screening" refers to:

- A) The final selection of a product design
- B) The process of evaluating and comparing product concepts
- C) Market research
- D) Prototyping

6. In concept selection, what does the "Weighted Scoring Method" involve?

- A) Rating concepts based on predefined criteria
- B) Collecting feedback from customers
- C) Testing prototypes in real-life situations
- D) Developing a new feature

7. The Quality Function Deployment (QFD) tool is primarily used to:

- A) Rank concepts
- B) Translate customer needs into design specifications
- C) Generate product ideas
- D) Screen competing products

8. Which technique is used to organize and evaluate the criteria used in concept selection?

- A) Decision Matrix
- B) Prototype Testing
- C) Focus Group
- D) Value Engineering

9. A "Design Criteria" in the context of product development refers to:

- A) Customer preferences
- B) Physical properties of the material
- C) Key requirements and features for the product
- D) Production constraints

10. What is the "Pugh Matrix" used for?

- A) Determining prototype costs
- B) Comparing and selecting design concepts
- C) Generating innovative ideas
- D) Evaluating the product in the market

11. Which of the following is a disadvantage of concept generation via brainstorming?

- A) It encourages creative thinking
- B) It may lead to too many unrealistic ideas
- C) It allows for all ideas to be judged impartially
- D) It improves the focus of the design process

12. In the "Phase-Gate" process of concept selection, what is a "gate"?

- A) A product prototype
- B) A decision point where a product concept is evaluated
- C) A visual model of the product
- D) A final design document

13. Which of these methods is used for generating product ideas using consumer feedback?

- A) Benchmarking
- B) Customer Co-Creation
- C) Brainstorming
- D) Scoring Models

14. What does "TRIZ" stand for in the context of product design?

- A) Theory of Resource Integration and Zoning
- B) Theory of Inventive Problem Solving
- C) Technical Requirements for Innovative Zoning
- D) Technology Research and Innovation Zone

15. Which concept generation technique involves creating images or sketches to represent product ideas visually?

- A) Sketching
- B) Idea Mapping
- C) Storyboarding
- D) Prototyping

16. What is the main advantage of using a "Prototyping" approach in concept generation?

- A) It ensures the concept is ready for mass production
- B) It helps visualize the product before finalizing the design
- C) It minimizes design revisions
- D) It reduces the number of ideas

17. Which of the following is the most common method for selecting product concepts?

- A) Expert Reviews
- B) Market Testing
- C) Concept Scoring
- D) Consumer Focus Groups

18. A "Breakthrough" concept in product design means:

- A) A minor modification to an existing design
- B) An idea that challenges traditional thinking and offers a new direction
- C) A copy of a competitor's design
- D) A design that is already popular in the market

19. What is a "feasibility analysis" used for during concept generation?

- A) To ensure the product can be manufactured within budget constraints
- B) To predict the product's market success

- C) To test product prototypes
- D) To generate ideas for the next design

20. Which of the following is typically evaluated during the concept screening phase?

- A) Prototyping cost
- B) Technical performance
- C) Market readiness
- D) Both B and C

21. The "Fail-Safe Design" concept focuses on:

- A) Ensuring products are reliable and fail-proof
- B) Creating aesthetic appeal
- C) Incorporating as many features as possible
- D) Minimizing the cost of production

22. Which of these is a key component of a product design specification?

- A) Marketing strategy
- B) Legal implications
- C) Functionality requirements
- D) Brand name

23. "Concept Test" involves:

- A) Evaluating the product's manufacturing process
- B) Prototyping the product
- C) Gathering customer feedback on early-stage designs
- D) Reviewing the product's aesthetic appeal

24. What does the "Design for X" (DFX) methodology emphasize?

- A) Testing multiple concepts in parallel
- B) Design decisions focused on improving specific goals (e.g., cost, quality, etc.)
- C) Adapting existing technologies for new products
- D) Keeping the design process secret

25. In the "Zero-One" method of concept selection, what does the zero represent?

- A) The rejection of a concept
- B) An early-stage prototype
- C) A fully tested concept
- D) A poorly executed idea

26. The primary goal of concept generation is to:

- A) Finalize the design
- B) Identify the most promising ideas
- C) Test prototypes
- D) Begin manufacturing

27. A key feature of the "User-Centered Design" approach is:

- A) Focusing on the aesthetic appeal
- B) Involving customers in the product development process
- C) Prioritizing cost reduction
- D) Generating ideas internally

28. A "skeleton sketch" is best used for:

- A) Demonstrating key product features
- B) Evaluating market demand
- C) Detailing product dimensions
- D) Generating customer feedback

29. In the product development process, the "Down-Selection" refers to:

- A) The process of choosing between similar concepts
- B) Creating prototypes
- C) Developing the final design
- D) Finalizing the marketing strategy

30. What is the focus of the "Design Thinking" approach to concept generation?

- A) Narrowing down ideas quickly
- B) Ensuring efficient production processes
- C) Understanding and addressing customer needs
- D) Focusing on aesthetics and brand appeal

31. The "Eisenhower Matrix" is used to:

- A) Select the most viable product concept
- B) Prioritize tasks during product development
- C) Generate new ideas
- D) Evaluate market demand

32. What does a "Product Concept" typically include?

- A) Customer needs and desired features
- B) Physical properties of the materials
- C) A prototype for testing
- D) A business strategy

33. "Customer Journeys" in product development refer to:

- A) The steps a customer takes to purchase a product
- B) The process of designing products with a focus on customer experience
- C) The routes customers take when visiting a store
- D) A prototype's path to completion

34. What does the term "Technical Feasibility" mean in concept selection?

- A) Whether the product will appeal to customers
- B) Whether the product can be built within the available technology
- C) Whether the product can be manufactured at scale
- D) Whether the product will be profitable

35. A "Conjoint Analysis" is used for:

- A) Determining customer preferences for product attributes
- B) Screening product concepts
- C) Brainstorming design ideas
- D) Identifying manufacturing constraints

36. Which is NOT a major criterion in concept selection?

- A) Technical feasibility
- B) Market demand
- C) Manufacturing cost
- D) Brand identity

37. In the "3D Scoring" method, what does "D" stand for?

- A) Design
- B) Decision
- C) Demand
- D) Delivery

38. Which phase of product development typically involves the least amount of risk?

- A) Concept Generation
- B) Concept Selection
- C) Prototyping
- D) Mass Production

39. What is a "Minimum Viable Product" (MVP)?

- A) The most advanced version of a product
- B) A basic version that captures the core functions for testing

- C) A product with all features implemented
- D) A fully manufactured product ready for launch

40. The "Customer Needs" analysis focuses on:

- A) What features to include in the product
- B) How to market the product
- C) How much to charge for the product
- D) The technical specifications

41. What is the benefit of using "Value Engineering" in concept selection?

- A) Reducing product development time
- B) Minimizing production costs while maintaining product quality
- C) Increasing product complexity
- D) Maximizing customer satisfaction

42. Which approach focuses on reducing product development time through overlapping stages?

- A) Stage-Gate Process
- B) Concurrent Engineering
- C) Linear Development
- D) Sequential Design

43. In the context of product design, "Sustainability" refers to:

- A) Reducing the cost of materials
- B) Minimizing environmental impact
- C) Maximizing market share
- D) Expanding the product's feature set

44. Which of the following is an example of a "soft" criterion in concept selection?

- A) Cost of production
- B) Manufacturing ease
- C) Customer satisfaction
- D) Technical performance

45. In the "House of Quality" matrix, what are the "Whats"?

- A) Customer requirements
- B) Engineering specifications
- C) Prototype designs
- D) Market trends

46. What is the "Cost-Benefit Analysis" method used for?

- A) Generating product ideas
- B) Comparing the costs and expected benefits of different concepts
- C) Testing prototypes
- D) Estimating manufacturing timelines

47. The "Feasibility Study" focuses on:

- A) The likelihood that a product will be successful in the market
- B) The technical and financial viability of the concept
- C) Gathering customer feedback on ideas
- D) Finalizing the product design

48. What does "CAD" stand for in product design?

- A) Computer Aided Design
- B) Computer Analysis Design
- C) Conceptual Art Design
- D) Creative Automated Design

49. In the "Design for Assembly" method, what is the primary goal?

- A) To minimize the number of parts in a product
- B) To ensure ease of use for the customer
- C) To enhance product aesthetics
- D) To increase the product's features

50. Which of the following is an example of "Incremental Innovation"?

- A) A completely new technology
- B) A product that builds upon existing designs with minor changes
- C) A radical new market approach
- D) A shift in the industry's business model