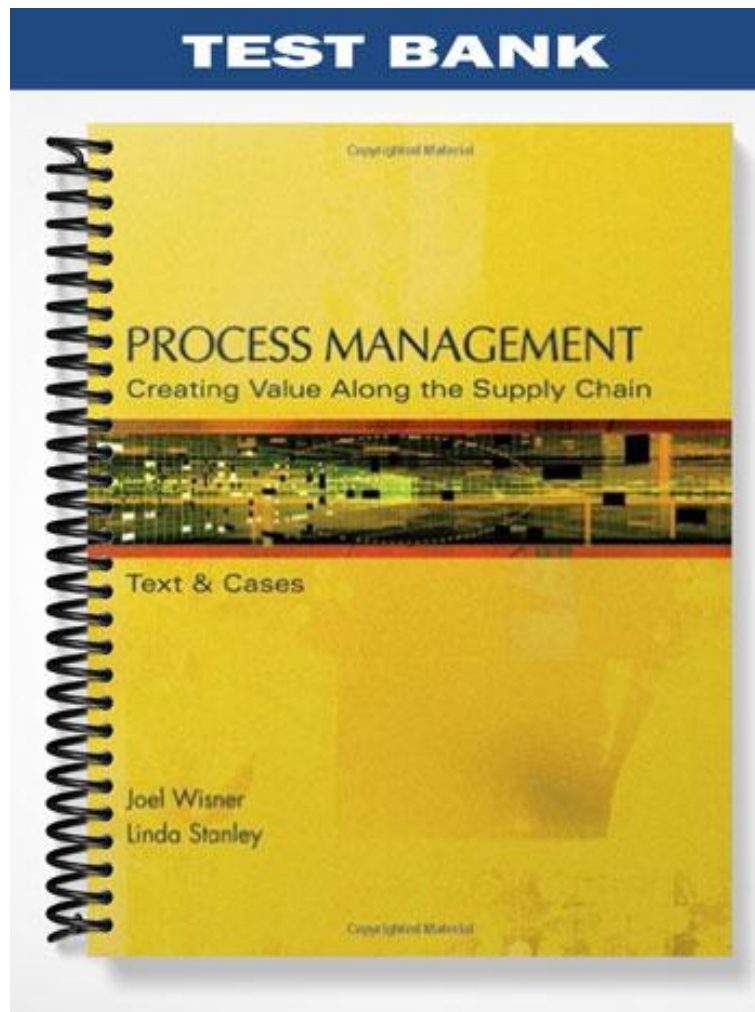


TEST BANK



Chapter 2 Test Bank Questions

True or false questions

1. One possible source for a firm to gain competitive advantage is developing new or redesigned products and services quickly. **True**
2. The product development process is simple because firms only consider the cost of design and production. **False**
3. Foreign markets are under increasing pressure to come up with new and innovative designs in order to remain competitive. **False**
4. Software is now available to support the product and process design in order to facilitate concurrent engineering, design for manufacturing and assembly, and supplier integration in the product development process. **True**
5. Many organizations have research and development teams specifically dedicated to conducting basic research for the purpose of converting innovations into commercial applications. **True**
6. QFDs are teams that develop new products and are usually conducted in a short timeframe and outside the normal rules. **False**
7. Customers and suppliers may also assist in the development of new products and services. **True**
8. Some organizations form kaizen teams to get better information about customers' wants and needs. **True**
9. Quality function deployment (QFD) is a technique that is commonly used in manufacturing today that assists with planning and communication among those involved in the design process. **True**
10. A business case should be prepared for review and approval by a formal screening team once the product idea is fully developed. **True**
11. The business case is a written justification for approving the new product or service idea and is based on effective product and service design with respect to a breakeven analysis. **False**
12. Once a project is authorized, it goes into a "skunkworks phase", which is a process also known as "design-build-test", where design engineers make up detailed drawings of the new product and develop blueprints. **False**
13. For service providers, the delivery system is developed at the same time as the new service concept because these steps cannot really be separated. **True**
14. Service blueprinting, a method similar to flowcharting in manufacturing, is often used to describe a new or redesigned service process. **True**
15. Once the design-build-test phase has been successfully completed, then the pilot production occurs where the product is produced on a limited basis to determine if full-scale production is possible. **True**
16. Concurrent engineering, which is a relatively a new practice, is based on the idea of designing products and their manufacturing and support processes simultaneously. **False**
17. Integrated product development, which may include engineering, marketing, operations, and supply management, work together from the beginning to the end of a new product design project to ensure that goals are met. **False**

18. Design for manufacture and assembly is best described when manufacturing personnel are involved early in the new product design process in order to determine how production of a new product can be produced and controlled more easily. **True**
19. A software program, known as computer-aided design, uses computer graphics to design component parts. **True**
20. Customer focus is an approach used by some companies where that the customer drives the strategic marketing decisions. **True**
21. An innovative product focus strategy is an approach used by some organizations that develop products or services and then focus on creating a market for them. **True**
22. Mass customization processes are generally found in organizations offering low volume custom products or services with low flexibility. **False**
23. Batch processes are found in organizations where less customization is provided to customers than those found in job shop processes. **True**
24. Assembly line processes are characterized have much higher volumes that are typically generated on dedicated equipment to one or two tasks to produce highly standardized products. **True**
25. A continuous system is characterized with almost no variety in output and equipment typically dedicated to one task. **True**
26. In job shop processes, the high volume production of customized products is developed to reach a diverse group of worldwide markets. **False**
27. A breakeven analysis is used to provide the approximate sales volume required to cover fixed and variable costs. **True**
28. Another form of breakeven analysis looks at different expected volumes of production at the costs of alternative production processes in order to decide at what ranges each alternative is the most cost efficient. **True**
29. Marketers use data mining software to help identify hidden patterns of behavior or common interests among their customer group. **True**
30. Companies have been known to use spyware software for collecting information about consumer behavior with the user's prior knowledge. **False**

Multiple choice questions

1. The new product development process begins with
 - a. basic research.
 - b. technology and software.
 - c. building a business case.
 - d. understanding the capabilities of the design engineers.Correct answer: A
2. Generating product ideas involves an understanding of customers' wants and needs, and uses
 - a. quality function deployment.
 - b. design and operating matrix.
 - c. service blueprinting.
 - d. kaizen investigation teams.Correct answer: D

3. Skunkworks is a growing method utilized by companies used for developing new products. These skunkworks consists of
- a. new ideas developed through contact with customers and suppliers.
 - b. teams that develop the new products in a short timeframe and outside the normal rules of the firm.
 - c. a new product team charged to convert the house of quality into technical requirements.
 - d. a service blueprint used for describing the service process.

Correct answer: B

4. A technique used today in manufacturing to assist with the planning and communication among all those involved with the design process is known as
- a. kaizen investigation teams.
 - b. quality function deployment.
 - c. skunkworks.
 - d. blueprinting.

Correct answer: A

5. A QFD team will analyze research results collected from the customer focus groups, surveys, on on-site visits. The team will then create a document called
- a. a business case for justifying the approval for the new product.
 - b. service blueprint for flowcharting processes.
 - c. the house of quality, which shows the translated customer requirements into product attributes.
 - d. technical specifications.

Correct answer: A

6. The QFD process includes all of the following except:
- a. House of quality
 - b. Design matrix
 - c. Operating matrix
 - d. Feedback matrix

Correct answer: D

7. The screening process considers all of the following except:
- a. Financial considerations
 - b. Product competitiveness
 - c. Product marketability
 - d. Senior management

Correct answer: D

8. A business case includes
- a. a list of high-level product requirements.
 - b. a list of benchmark competitors.
 - c. projected market trends and cost analysis.

d. an evaluation of the interrelationships between customer requirements and engineering requirements.

Correct answer: A

9. The design phase begins after the project is approved and it involves

a. converting the reasons for this new product.

b. detailed engineering drawings of the new product, including prototypes.

c. pilot production runs.

d. DFMA software.

Correct answer: B

10. For service providers, service blueprinting is a process that can be used
- to identify and address potential problems in the service delivery process.
 - to provide some added benefits not typically experienced with other services.
 - to screen potential projects for “best fit.”
 - to assess competitive or planning matrix requirements.

Correct answer: A

11. The process based on designing products and manufacturing support processes at the same time is known as
- quick development.
 - detailed engineering drawings of the new product, including prototypes.
 - integrated product development.
 - DFMA software.

Correct answer: A

12. One favorable outcome with the use of DFMA software is
- quick response to unanticipated problems in the supply chain.
 - a three-dimensional concurrent engineering design.
 - enhancing workforce and supplier skill-levels.
 - a reduction in the number of parts used in manufacturing.

Correct answer: D

13. Today, the design of new products development extends across the supply chain and includes customers and suppliers. The degree of involvement depends on the firm’s strategy. Some firms will take a customer focus, which is best described as
- an innovation strategy where the product developed and is then introduced into the market and monitored for customer acceptance.
 - an innovative strategy where the customer drives all of the strategic marketing decisions.
 - an innovative strategy that involves the supplier early in the process for fulfilling requirements.
 - an innovative strategy that values customer wants and needs.

Correct answer: B

14. Some firms will take a product focus strategy in the design of new products development. The degree of involvement depends on the firm’s strategy, which is best described as
- an innovation strategy where the product developed and is then introduced into the market and monitored for customer acceptance.
 - an innovative strategy where the customer drives all of the strategic marketing decisions.
 - an innovative strategy that involves the supplier early in the process for fulfilling requirements.
 - an innovative strategy that values customer wants and needs.

Correct answer: A

15. Early supplier involvement is a phenomenon that brings suppliers into the design process, and is largely due to
- increased outsourcing.
 - DFMA software advances.
 - modularity of products.
 - Advances in CAD systems.

Correct answer: A

16. Process selection can be characterized into four general types. Which one of the following is not production process?
- Job shop
 - Assembly line
 - Project
 - Batch

Correct answer: A

17. Firms generally match the production process selection based on a set of criteria, which are:
- output volume and speed.
 - output volume, flexibility, and the variety mix of products.
 - the variety mix of products and output volume.
 - output volume, speed, flexibility, and the variety mix of products.

Correct answer: C

18. Job shops are best characterized as:

- high-volume, low variety mix of products, and low flexibility.
- low-volume, high variety mix of products, and high flexibility.
- high-volume, high variety mix of products, and some flexibility.
- low-volume, low variety mix of products, and some flexibility.

Correct answer: B

19. Assembly lines are best characterized as:

- high-volume, low variety mix of products, and low flexibility.
- low-volume, high variety mix of products, and high flexibility.
- high-volume, high variety mix of products, and some flexibility.
- low-volume, low variety mix of products, and some flexibility.

Correct answer: A

20. Batch processes are similar to job shop environments and can be found in firms with

- less customized products, low variety mix of products, and some flexibility.
- more customized products, high variety mix of products, and some flexibility.
- less customized products, low variety mix of products, and some flexibility.
- more customized products, high variety mix of products, and some flexibility.

Correct answer: A

21. Mass customization is a trend found in organizations that

- a. was developed to create a wide variety of product lines.
- b. is made possible with high production volumes of customized products.
- c. uses postponement practices early in the production stage.
- d. delivers highly customized products in low volumes.

Correct answer: B

22. A quantitative method used for considering the financial feasibility of a new product introduction is known as
- a. breakeven analysis based on cost-volume trade-offs.
 - b. a service blueprint analysis conducted during the screening process.
 - c. breakeven process flow analysis based on target performance measurements, such as cost, quality, and speed of delivery.
 - d. a process selection analysis based on volume and expected product mix.

Correct answer: A

23. Service organizations have historically not been known for innovation. However, a number of changes are occurring at a more rapid rate than in the past. Why?
- a. Some companies are using more mass customization methods.
 - b. Technology advances are allowing firms to create multiple service delivery options for their customers.
 - c. More U.S and other highly developed economies are become more service-based.
 - d. Variability is inherent in service delivery systems.

Correct answer: B

24. Market research is used primary to
- a. define clear objects for pushing products into the market.
 - b. provide guidance to senior management for training and development of employees.
 - c. help senior management conduct effective breakeven studies.
 - d. understand the desires of the firm's target customer group.

Correct answer: D

25. Incremental innovations in service design include all of the following except:
- a. Small changes in service style
 - b. Improvements in service
 - c. Extension in service line
 - d. New services in new markets

Correct answer: D

Short answer questions

1. Why is quick development of new or redesigned products and services a source of competitive advantage for the firm?

Solution: For many firms, at least 40% of revenues come from new product introduced in the prior year. For highly innovative firms that are first-movers in the marketplace, quick development of new or redesigned products and services can lead to high revenue streams and initially stay ahead of competitors.

2. What is quality function deployment process?

Solution: Quality function deployment (QFD) is a technique used to help those involved with the new product design process with the planning and communication. It is during the development stage where the design team converts research results into customer needs. This includes a document called the house of quality that translates the customer requirements into product attributes, technical specifications, and an evaluation of how the product will compete against competitors.

3. Define integrated product development and concurrent engineering

Solution: Integrated product development, which has also been known as concurrent engineering, is the practice in which all those involved in the product design – the customer, marketing, engineering, operations, and supply chain partners – work together from start to finish to ensure that the customer goals as well as cost, quality, marketing, and operational goals are achieved.

4. Describe how technology advances have made the new product development easier.

Solution: Advances in technology have allowed multiple tasks in the new product development processes to be performed simultaneously. One example is a software program known as computer-aided design (CAD), which uses computer graphics to design component parts with greater accuracy. Copies of the product design can be passed onto and shared by all those involved in the new product development process.

5. Explain the role of suppliers in new product development.

Solution: Getting the suppliers involved in the new product development process early can potentially lead to shorter product development times, higher quality, and lower production costs. This phenomenon is known as early supplier involvement. The importance of early supplier involvement is largely due to the increasing trend to outsource components and subassemblies.

6. Describe the fit between product development and process development.

Solution: The process used to manufacture the new product should be designed at the same time as the product is designed in order to gain optimal performance, such as cost, quality, and flexibility, and speed to market. Typically, the process design is based on two criteria: expected level of output and the variety of products. Higher-levels of product variety tend to have more customized processes and generally low

levels of output. While less variety of products tend to use more specialized equipment resulting in higher levels of output.

7. List and briefly describe the basic four process designs.

Solution: Job shops are found in firms that offer custom products. These job shops are characterized as low-volume and highly flexibility to meet customer wants and needs.

Batch processes tend to be a less custom environment than job shops. The equipment is more specialized and automated, but some level of flexibility is still needed.

Assembly lines generated more volume than the batch environment with less flexibility. This allows for much greater levels of output.

Continuous production is a system where there is almost no output variety and the equipment used is dedicated to one task.

8. What is mass customization?

Solution: Mass customization is the idea of producing a high volume output simultaneously with customized products. This idea is made possible by postponing the final production and delivery of those customized products until the actual customer order. This idea creates enough variety in the company's product line so that any customer could find what is wanted at a reasonable price.

9. Janie owns a specialty candy shop, which caters to the year-round tourism. She is considering adding a new product line of specialty candy. The cost of the equipment is estimated at \$10,000. The labor and material cost is estimated at \$0.50 per box. She plans to sell each box at \$2.50. Perform a break-even analysis.

Solution:

Input

Fixed costs	\$10,000.00
Variable costs	\$ 0.50
selling price/unit	\$ 2.50
Desired profit	

Results

Contribution/unit	\$ 2.00
Breakeven point (units)	5,000

10. Describe the enablers of good product and service design

Solution: An effective product and service design needs to have visible and continuous support from senior management. Also important is a clear understanding of customer wants and needs, which can be accomplished with good market research. Information technology can also enable good product and service design. This technology may include customer relationship management, data mining, and web mining to find customers' preferences.

Essay questions

1. List and describe the new product development process.

Solution: The new product development process consists of six stages. These six stages are: (1) generate ideas, (2) develop concept, (3) analyze and screen, (4) develop product and process, (5) test, and (6) introduce product to market.

Generating product ideas involves finding ways to increase the number product innovations and moving them to a commercial market. Many organizations conduct basic research in what is known as R&D (research and development), where they look for ways to increase the number of product innovations followed by commercial application. Employees are typically a good source of ideas. Some companies will use teams, called skunkworks, to develop new products in a short timeframe and typically outside the normal rules. Other ideas for new products may also be developed through contacts with business customers, consumers, and suppliers.

Once an idea looks like a good fit with the firm's strategy, mission, objectives, and financial capabilities, then it can be further developed. Traditional methods tend to focus on the capabilities of the design engineers. Another technique, known as quality function deployment, is used to help all those involved in the design process for better planning and communication.

As the product is being fully developed, a business case for completion should be prepared followed by a formal screening for review and approval. The business case is a written justification for approving the new product, and is based on data collected with respect to the targeted market.

Once the product (and business case) has been approved, then it goes through a design phase for developing the product and includes the process for making the product. Tests are then conducted on the product. These two stages may be simultaneously conducted in a repeating "design-build-test" until successful tests are completed.

After successful tests, pilot production begins on a small-scale to see if a full-scale production is possible. Once the pilot production is complete, then the product is introduced to the market.

2. Describe the special issues with service design.

Solution: Most of the U.S. and other highly-developed economies are now based in the service sector. Services have unique characteristics that make service designs difficult. Services have both “substantive” and “peripheral” components, which most of these are intangible and difficult to measure. For example, in the university, the substantive component would be the education and the peripheral component would be the knowledge and presentation skills of the professor.

The customer also plays an involved role in the design and delivery process. Service providers offer a range of available services that the customer may pick from. For example, a hair salon will offer a “menu” of services where the customer is involved in the delivery process. In this case, the customers provide inputs to the service and feedback based on the outcome.

Another characteristic of the service delivery system is time. The service delivery may vary in time. Some service delivery systems may take a few minutes, such as a drive-thru fast food restaurant; while retirement planning may take years for managing portfolios.