# Chapter 16: Warehousing

**TRUE/FALSE**

1. A warehouse can be used to import goods when a quota is open, so that they can be sold year round.

ANS: T DIF: Easy REF: page 582

2. A warehouse can be used to smooth out the seasonality of the supply of a particular raw material.

ANS: T DIF: Easy REF: page 583

3. Warehouses can be used to store items when demand is seasonal, so that production can remain roughly constant throughout the year.

ANS: T DIF: Moderate REF: page 583

4. There are three levels to consider when deciding the location of a warehouse.

ANS: T DIF: Easy REF: page 585

5. The quality of the local school system has no impact on the decision to locate a warehouse in a particular city.

ANS: F DIF: Moderate REF: page 585

6. A public warehouse is owned by the local government.

ANS: F DIF: Moderate REF: pager 587

7. The first activity that a warehouse engages in, chronologically, is receiving the goods.

ANS: T DIF: Easy REF: page 588

8. In a warehouse, goods are kept in their secondary or tertiary package to protect them from possible handling damages.

ANS: F DIF: Moderate REF: page 589

9. In a warehouse, pallets of goods are frequently placed on vertical racks.

ANS: T DIF: Easy REF: page 590

10. Racks that reach 60 meters (180 feet) are called “very high bay racks.”

ANS: T DIF: Moderate REF: page 592

11. Gravity-fed racks encourage a first-in first-out inventory policy.

ANS: T DIF: Easy REF: page 592

12. Picking is the most labor intensive activity in a warehouse.

ANS: T DIF: Easy REF: page 594

13. In a picker-to-goods strategy, as much as 50 percent of a picker’s time is spent traveling in the warehouse.

ANS: T DIF: Easy REF: page 596

14. Pickers operate the Kiva robots that operate in the amazon.com warehouses.

ANS: F DIF: Moderate REF: page 595

15. The goods-to-picker strategy is the one most commonly employed in warehousing.

ANS: F DIF: Moderate REF: page 595

16. Cluster picking involves picking multiple orders at a time. The picker keeps the orders separate.

ANS: T DIF: Easy REF: page 596

17. Batch picking involves picking multiple orders at a time. The picker keeps the orders separate.

ANS: F DIF: Easy REF: page 597

18. The paper-list picking technique is the one that relies the most on the ability of the picker to choose the right item in the right quantity, without an independent method to ensure accuracy.

ANS: T DIF: Hard REF: page 597

19. Voice-recognition technology allows the picker to work with both hands.

ANS: T DIF: Easy REF: page 598

20. Warehouses are able to place returns from customers directly on shelves for re-sale.

ANS: F DIF: Moderate REF: page 600

21. Value-added services include inserting instruction booklets in boxes and labeling goods for local markets.

ANS: T DIF: Moderate REF: page 600

22. The “A-B-C rule” stands for “all business consolidated” rule.

ANS: F DIF: Easy REF: page 601

23. The staging area of a warehouse refers to the area where goods are placed before they are loaded in trucks.

ANS: T DIF: Easy REF: page 601

24. The main security concern of warehouse managers is terrorism.

ANS: F DIF: Moderate REF: page 602

25. Screening of employees is considered to be the best preventive measure for avoiding thefts in warehouses.

ANS: T DIF: Easy REF: page 603

**MULTIPLE CHOICE**

1. Warehouses have many functions. One of them is to:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Reduce the response time on a customer’s order. | d. | Increase the response time to a customer’s order. |
| b. | Reduce the inventory carrying costs of the company. | e. | Increase the inventory carrying costs for the company. |
| c. | Reduce duty rates for the company. |

ANS: A

Warehouses exist in part to reduce the response time to a customer’s order.

DIF: Easy REF: page 582

2. Warehouses can smooth out variations in:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | End-product sales (seasonality). | d. | Marketing efforts. |
| b. | Raw-material availability. | e. | All answers in this set of responses are variations that warehouses can smooth out. |
| c. | Raw materials’ price fluctuations. |

ANS: E

Warehouses are used to smooth out variations due to to the seasonality of end products, to the seasonality of raw materials’ availability, to fluctuations in prices, and in marketing efforts that generate changes in sales volume.

DIF: Easy REF: page 583

3. When there can be potential disruptions in the supply chain, such as strikes, bad weather, or natural disasters, warehouses can help companies support their operations by:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Manufacturing extra products. | d. | Increasing inventory turns |
| b. | Carrying safety stocks. | e. | Reducing service levels |
| c. | Reducing labor costs. |

ANS: B

Warehouses can carry safety stocks to absorb variations in lead times for raw materials and final products.

DIF: Moderate REF: page 583

4. In a warehouse, consolidation refers to the process of:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | obtaining products from different sources and packaging them with other products so they can be sold together to customers. | d. | obtaining parts from different sources and manufacturing end products from these parts. |
| b. | obtaining products from different manufacturers and selling them in smaller quantities to customers. | e. | obtaining parts from different manufacturers and hiring suppliers to assemble them into end products. |
| c. | obtaining products from different sources in large quantities and selling them in smaller quantities to customers. |

ANS: A

Consolidation is the process of taking shipments of products from different sources, obtained in large quantities, and combining them with other products that are then sold to customers.

DIF: Moderate REF: page 584

5. Warehouses can provide additional services to manufacturers; packaging goods in different quantities, adding different-language instruction booklets, changing labels, or providing after-sale services, such as warranty work. Collectively, these activities are called:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Ancillary services | d. | After-sale services |
| b. | Customer-centered services | e. | Related services |
| c. | Value-added services |

ANS: C

Any additional service provided by a warehouse is considered a value-added service.

DIF: Easy REF: page 584

6. The three decision levels to consider when locating a warehouse are:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | The regional, municipal, and local levels. | d. | The regional, municipal, and parcel levels. |
| b. | The national, regional, and local levels. | e. | The global, national, and municipal levels. |
| c. | The national, regional, and parcel levels. |

ANS: D

A warehouse location is determined after considerations at the regional, municipal, and parcel levels.

DIF: Moderate REF: page 585

7. In which of the following types of warehouses does an exporter rent space “as needed,” and therefore which type of warehouse would be only a variable cost?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Private warehouse. | d. | Common warehouse. |
| b. | Contract warehouse. | e. | Universal warehouse. |
| c. | Public warehouse. |

ANS: C

A public warehouse rents space to companies that need it, and that amount of space can change quickly, making this transaction a variable cost. Contract warehouses and private warehouses involve long-term contracts that have fixed costs, regardless of the amount of space utilized.

DIF: Easy REF: page 587

8. Chronologically, what is the first activity that takes place in a warehouse?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Receiving | d. | Packaging |
| b. | Storing | e. | Shipping |
| c. | Picking |

ANS: A

The first activity in a warehouse consists of receiving the goods before they are stored, picked, packaged, or shipped.

DIF: Easy REF: page 588

9. Which of the following racking alternatives does not exist?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Mobile racks | d. | Very-high-bay racks |
| b. | Wide-aisle low-bay racks | e. | Wide-bay racks |
| c. | Gravity-fed racks. |

ANS: E

All styles of racks mentioned in this answer exist, with the exception of wide-bay racks.

DIF: Moderate REF: page 590

10. Warehouse construction is constrained by a trade-off between:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | cost of construction and cost of operation. | d. | cost of inventory and cost of storage. |
| b. | cost of land and costs of construction and operation. | e. | cost of land and cost of racking system(s). |
| c. | cost of land and cost of capital. |

ANS: B

In all cases, warehouse construction is a trade-off between the cost of land (low-level racking and wide aisles) and the cost of construction (floors able to sustain greater weights and racking costs) and operation storage and retrieval more capital intensive and time consuming).

DIF: Moderate REF: page 591

11. Automated Storage and Retrieval Systems use conveyor belts and very high-bay racks to store goods. Their accuracy and reliability is very high; however, they must use pallets that are:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | in perfect condition | d. | in good condition and uniform in size |
| b. | made of composite materials | e. | None of the above |
| c. | identical in size |

ANS: D

ASRS systems require pallets or containers that are uniform in size and in perfect condition. They do not need to be made of composite materials.

DIF: Moderate REF: page 593

12. Amazon.com’s Kiva robots are part of a picking strategy called:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Picker to goods. | d. | Goods to picker |
| b. | Racks to picker. | e. | Pods to picker |
| c. | Goods to racks. |

ANS: D

The robots used by Amazon.com are an example of a goods-to-picker strategy.

DIF: Moderate REF: page 595

13. In a picker-to-goods strategy, the picker spends most of his/her time:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | picking goods. | d. | packaging goods. |
| b. | shipping goods. | e. | processing paperwork related to the pick. |
| c. | traveling from one location to another. |

ANS: C

As much as 50 percent of a picker’s time in a picker-to-goods operation is spent on traveling to different locations in the warehouse.

DIF: Easy REF: page 596

14. What is the name of the practice that consists of requiring pickers to gather the items for several orders at once, but keep them separate in separate totes?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Pick to order | d. | Zone picking |
| b. | Batch picking | e. | Bundle picking |
| c. | Cluster picking |

ANS: C

Batch picking consists of gathering the goods for several orders at once, and having the picker keep orders apart by placing the goods in separate totes.

DIF: Moderate REF: page 596

15. What is the picking technique that allows the picker to have both of his/her hands free while selecting goods?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Paper picking | d. | Voice picking |
| b. | Label picking | e. | Barcode picking |
| c. | Sound picking |

ANS: D

Both voice picking and light picking (not in this question) leave pickers with their hands free.

DIF: Easy REF: page 598

16. Receiving docks, shipping docks, and a staging area are parts of a warehouse layout that are considered\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | necessary | d. | cost centers |
| b. | fixed | e. | peripheral |
| c. | flexible |

ANS: B

Receiving docks, shipping docks, staging areas (as well as other areas such as service areas, charging areas, and office space) are considered fixed areas in a warehouse layout.

DIF: Easy REF: page 601

17. What is the name of the concept that observes that 80 percent of inventory costs are generated by 20 percent of the products?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Juran’s Law | d. | Pueblo’s Law |
| b. | Deming’s Law | e. | Pareto’s Law |
| c. | Da Vinci’s Law |

ANS: E

Pareto’s Law was coined by Joseph Juran, and refers to the 80/20 rule expressed in the question.

DIF: Moderate REF: page 601

18. Most warehouses’ storage areas are organized:

|  |  |  |  |
| --- | --- | --- | --- |
| a. | using some form of alphabetical rule | d. | using streets and avenues like a city’s grid. |
| b. | using some form of organization based on the Dewey Decimal System | e. | using some form of organization following a design proposed by the American Society of Warehouse Engineers. |
| c. | using some form of A-B-C rule |

ANS: C

Most warehouses are organized on some variation of the A-B-C rule, whether it is by sales, volume, size, velocity or some other criterion.

DIF: Moderate REF: page 602

19. Which storage option allows a warehouse to handles products that must be shipped on a first-in-first-out basis---the oldest items in the storage area must be shipped first---most easity?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | High-bay narrow-aisle racks. | d. | No racks; goods are stacked on the floor. |
| b. | Low-bay wide-aisle racks. | e. | Mobile racks. |
| c. | Roller gravity-fed racks. |

ANS: C

First-in-first-out shipments are faciltitated by gravity-fed racks that present the oldest item to the pick face.

DIF: Difficult REF: page 591

20. Properly screening and training warehouse employees improve a warehouse’s ability to reduce which two primary security risks?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Pilferage and theft | d. | Terrorism and pilferage. |
| b. | Terrorism and theft. | e. | Screening and training do not reduce the primary risks to a warehouse.. |
| c. | Theft and damage to the goods. |

ANS: C

Theft and damage to the goods, from carelessness or mishandling, are the two primary risks for a warehouse. They can be reduced with careful screening and continuous training.

DIF: Moderate REF: page 603

COMPLETION

1. Warehouses can be used to manage in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ part of the supply chain, that consists of the procurement processes of the firm.

ANS: upstream

DIF: Moderate REF: page 582

2. Warehousing is necessary when a product is made with a seasonal agricultural product but sells \_\_\_\_\_\_\_\_\_.

ANS: year-round

DIF: Moderate REF: page 583

3. A distribution center is a warehouse whose primary function is \_\_\_\_\_\_\_\_\_, bringing large quantities of products manufactured in different areas and shipping them together in smaller shipments to downstream members of the supply chain.

ANS: consolidation

DIF: Moderate REF: page 583

4. All of the public and private goods that facilitate transportation, communication, and business exchanges, and which feature prominantly in the site selection for a warehouse are collectively called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: infrastructure

DIF: Easy REF: page 585

5. When a company decides to invest in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_operation, it builds its warehouse on a piece of land on which no building has been erected before.

ANS: greenfield

DIF: Moderate REF: page 587

6. In a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ warehouse, an exporter rents space from a company that also sells space to other tenants.

ANS: public

DIF: Easy REF: page 587

7. When a warehouse receives goods shipped by truck, they are unloaded on a \_\_\_\_\_\_\_\_.

ANS: dock

DIF: Moderate REF: page 589

8. When the cost of land is high, warehouses tend to build \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ racks.

ANS: higher/high

DIF: Hard REF: page 591

9. Very-high-bay racks are integrated in the building of the facility; they can be \_\_\_\_\_\_ high .

ANS: 60 meters / 180 feet

DIF: Hard REF: page 592

10. In a warehouse running on a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ strategy, much of the picker’s time is wasted in traveling from pick face to pick face.

ANS: picker-to-goods

DIF: Moderate REF: page 596

11. When a warehouse runs a \_\_\_\_\_\_\_\_\_\_\_\_ technique, the employee picks several orders at once, but does not keep them separate; they are gathered in the same cart or pallet.

ANS: batch picking

DIF: Moderate REF: page 597

12. Picking can use a simple technology where the picker obtains a list printed on a sheet of \_\_\_\_\_\_\_, which are eventually placed on each item picked.

ANS: labels

DIF: Hard REF: page 597

13. In a warehouse, returned goods are \_\_\_\_\_\_\_\_\_\_\_\_\_ for inspection rather than immediately placed back on shelving.

ANS: segregated/isolated

DIF: Moderate REF: page 600

14. In an A-B-C classification, the C goods represent \_\_\_\_\_\_ percent of the costs, and 50 percent of the products.

ANS: five/5

DIF: Hard REF: page 602

15. Most warehouse thefts involve people who are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

ANS: insiders, workers, employees

DIF: Moderate REF: page 603