

Growing tensions between the US and China have prompted manufacturers to seek more secure supply chains closer to home. This has contributed to a rise in nearshoring and friendshoring, strategies aimed at securing supply chains against geopolitical risks.

Which of the following is an example of friendshoring in the context of the US-China trade war?

- A. Establishing new production facilities in Mexico to leverage shared trade agreements.
- B. Relocating manufacturing operations from China to Vietnam to lower labor costs.
- C. Outsourcing IT operations to India to access skilled labor at a reduced cost.
- D. Building a new production base in Brazil for its growing consumer market.

Collaborative planning, forecasting, and replenishment (CPFR) is an approach to the supply chain process that focuses on joint practices. This is done through cooperative management of inventory through joint visibility and replenishment of products throughout the supply chain.

How many of the following statements are **TRUE** about CPFR?

1. CPFR can be divided into four major phases with twelve collaboration tasks 8
2. Strategy and planning establish a set of rules for the collaborative relationship with two specific tasks: collaboration management and joint business plan.
3. Order generation, order fulfillment, performance ~~assessment~~, and store execution are all collaborative tasks in execution.
4. In demand and supply management, manufacturers conduct demand planning while retailers are responsible for replenishment planning.
5. Technology enables two-way communication, real-time conversation, shared forecasts, and historical data within collaborative relationships of business.
6. In CPFR, producers take responsibility for POS forecasting while retailers analyze market data. ~~nguile~~

A. 2

B. 4

C. 1

D. 3

The raw material warehouse of Hustlang Corp consists of 4 equal-areas within the reserve zone. Raw materials are transported between these areas at certain intervals. The existing layout is 1 – 2 – 3 – 4, and the material flow and the distances between the areas are demonstrated below. LSC is working on changing the layout of this storage zone to optimize the time and cost of moving materials between the areas.

MATERIAL FLOW MATRIX		To			
		1	2	3	4
From	1	-	15	20	25
	2		-	15	10
	3			-	10
	4				-

DISTANCE MATRIX		To			
		1	2	3	4
From	1	-	4	6	3
	2		-	3	5
	3			-	4
	4				-

Using the Pairwise exchange method, calculate the locally optimal layout distance.

- A. 380
- B. 375
- C. 385
- D. 405

Many companies are adapting with the pressure of the market by creating organizational structures that promote cross-functional and cross-organizational communication, coordination, and collaboration. Thus, cross-functional sourcing teams have become a critical part of supply management strategies and practices.

1. It brings together employees from several departments in order to accomplish a supply management or supply chain-related tasks such as product design or supplier selection, as well as in charge of lowering the cost of purchased goods or enhancing their quality. ✓
2. When a team does not complete its task in the best or most efficient manner or members are not motivated to employ their resources to create a successful outcome, it creates process loss.
3. It is best for companies to consider this team approach when the company is faced with a sophisticated or medium-scale business decision or when an individual comes up with the solution instead of team contribution. ✗
4. Firms commit the energy needed to form teams to realize specific performance benefits such as separated ownership of decisions, enhanced communication between functions or organizations and realizing synergies by combining individuals and functions. ✓
5. Although some forward-thinking companies are starting to hire full-time sourcing team members, most sourcing team assignments are still part-time which makes the use of sourcing teams an obstacle because they will disband after the tasks are accomplished. ✓
6. Rewards and recognition, which are useful tools for leaders to enhance employee's contribution and loyalty toward their job, are categorized into four groups including executive recognition, monetary bonuses and other one-time cash awards, nonmonetary rewards and merit raises awarded during the team member's annual performance review. ✗

How many statements are **INCORRECT** about cross-functional sourcing teams?

A. 4

B. 5

C. 3

Phuong dang trinh bay

LSCContainer is a shipping company in the U.S. The company has to ship many containers to 5 warehouses and the manager wants to identify a suitable location for the center hub which is the optimal central point that minimizes transportation costs or distances between multiple locations based on their weighted significance from the monthly shipments in the table below:

Warehouse	Coordinate	Containers/month
A	(50; 165)	2500
B	(90; 110)	1100
C	(30; 150)	3200
D	(45; 130)	2000
E	(60; 40)	1500

What should be the location of the center hub? Choose the option that is the nearest to the correct answer.

A. (54; 139)

B. (51; 121)

C. (62; 135)

D. (49; 129)



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SCMotorcar is considering a new assembly line process to reduce labor and material costs. The upgrade involves installing four robots to automate windshield installation at a cost of \$500,000, amortized over three years. A technician, earning \$72,000 annually, will replace three of the four current employees (each earning \$60,000), while one material handler remains. Additionally, the robots will save \$0.2 per windshield in sealing material.

How many cars must be produced in three years to justify the investment? Ignore the time value of money.

$$500 - 3.(3.60 - 72) = 0.2x$$

- A. 850,000
- B. 580,000
- C. 880,000
- D. 520,000

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Which of the statements is **INCORRECT** about 3PL?

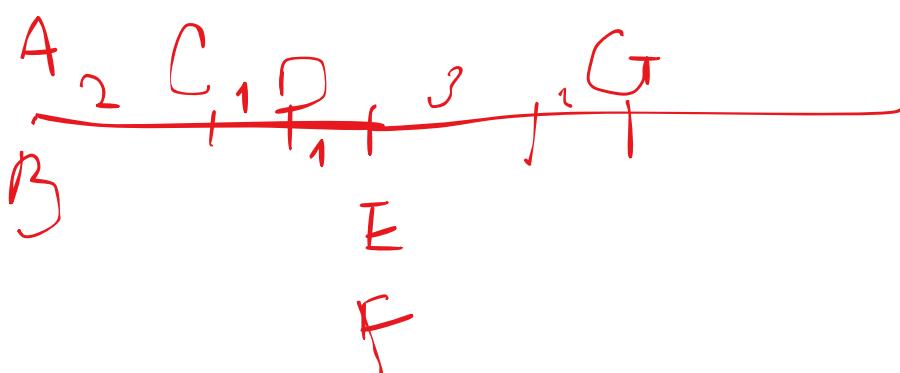
- A. Manufacturers contracting out their logistics activities are often worried about the protection of company information because they have to share confidential data
- B. 3PLs are asset-based logistics providers that manage the physical transportation of products across the supply chain
- C. Customer developers are the highest level of 3PL providers
- D. It is possible for a major 3PL provider to form a 4PL organization within its existing structure

CP is the manager of a project to manufacture fabric dyeing machines based on a major client's request, scheduled to be launched in 4 months. This project is divided into 7 key activities to ensure effective progress. It is known that certain activities must be completed before others can begin, and their completion times are also predetermined, as shown in the table below.

ACTIVITY	EXPECTED TIME (WEEK)	IMMEDIATE PREDECESSOR(S)
A	2	-
B	3	-
C	2	A
D	4	B
E	4	C
F	3	C
G	5	D, E

Which of the following statements is **INCORRECT**?

- A. The manager can delay Activity D for up to 1 week without affecting the entire project ✓
- B. The critical path includes Activity A and Activity E ✓
- C. The project completion time is 13 weeks ✓
- D. Slack time of Activity C is 1 week



The following information is available for LSCompany:

	2024	2023
Current assets	\$107,360	\$65,664
Total assets	\$488,000	\$368,280
Current liabilities	\$48,800	\$41,040
Total liabilities	\$146,400	\$162,000
Net income	\$122,000	\$54,000
Net cash provided by operating activities	\$134,200	\$75,600
Preferred dividends	\$12,200	\$10,800
Common dividends	\$6,100	\$2,700
Expenditures on property, plant, and equipment	\$54,900	\$21,600
Shares outstanding at beginning of year	\$73,200	\$43,200

Which statement is **CORRECT** about LSCompany?

- A. LSCompany's current ratio in 2017 is 27%.
- B. LSCompany profitability increased by 25% in 2024.
- C. The company's solvency also improved, as measured by the debt to assets ratio, which declined from 44% to 30%.
- D. The amount of cash generated by the company above its needs for dividends and capital expenditures increased \$30,500.

accounting

Question 3 of 40



SCar is planning to set up a contract with LSCarrier which includes a flat rate of \$3.5 per mile, adding a fuel surcharge based on the EnergyUp index. For each extra mile, the index point represents \$0.06 and SCar has to look at the index on a monthly basis. In June, the index is at 32. The company forecasts that its entire fleet is likely to drive 750,000 miles that month.

How much can SCar expect to pay LSCarrier that month?

- A. \$6,405,000
- B. \$4,168,000
- C. \$5,464,000
- D. \$4,065,000

Production layout refers to how work centers are arranged to ensure the manufacturing processes can operate smoothly and efficiently. Production layouts are sometimes built based on specific production processes and characteristics of the materials.

How many of the following statements about the production layout are **CORRECT**?

1. In cellular layout, there are a large number of intermediate goods and lead time often fluctuates considerably.
2. Functional layout is an economical option when businesses do not have enough resources to set up an assembly line.
3. Product-based layout allows frequent materials handling between work centers and places the workstation in the right sequence.
4. Fixed-position layout is mainly used for complex processes and enables the reduction of the cost of frequent movements.
5. Product-based layout can work with a line or continuous flow but its high degree of specialization requires small volume and large capital investment.
6. Cellular layout is usually applied in processes that produce families of parts or high volume and high variety products.

- A. 4
- B. 1
- C. 3
- D. 2

How many statements are **TRUE** about aviation logistics management?

- a) Air transport is often used to transport high-value, time-sensitive, or perishable goods, so it is critical for countries and logistics companies to have developed infrastructure.
- b) Airports, which provide essential services to the aviation industry, have main functions offered include: aircraft landing and take-off; the loading and unloading of passengers and cargo; various ground services; aircraft parking; and traffic control.
- c) There are two types of airlines that offer aviation logistics services: passenger cargo combi-carriers and all-freight carriers. While combi-carriers focus on air cargo and provide many value-added services, such as door-to-door transportation and warehousing, all-freight carriers focus on utilizing the aircraft's capacity by offering passenger travel service and putting air cargo in the belly.
- d) Hub-and-spoke networks allow a carrier to serve the same number of nodes with a much simpler network and higher traffic density with only $(N - 1)$ connections compared with fully connected networks.
- e) Air transport and logistics productions involve three types of basic operations: support activities; terminal operations; and line haul operations.
- f) The seventh freedom of the air can award one country the privilege to compete directly with the country that granted this freedom with its own air carriers in international markets.
- g) Instead of selling directly to end users (shippers), airlines usually sell their services to freight forwarders and third-party logistics (3PL) firms. These firms serve as agents for both shippers and carriers, receiving shipper orders and either forwarding them to airlines for a commission or managing the orders independently using aircraft space that has been bought or leased from carriers.

A. 3

B. 5

C. 1

D. 6

The management of LSChemicals Company, a pharmaceutical manufacturer with four facilities that service the warehouses of four significant clients, is trying to figure out the lowest-cost shipping timetable for its monthly output to these clients. These medications' factory supply, warehouse requirements, and transportation expenses per case are displayed in the tables below.



Factories	Supply	Warehouse	Demand
Ho Chi Minh City	15	Can Tho	10
Dong Nai	6	Tay Nguyen	12
Da Nang	14	Hue	15
Ha Noi	11	Bac Ninh	9

Shipping cost per case in USD

From	To Can Tho	To Tay Nguyen	To Hue	To Bac Ninh
Ho Chi Minh City	25	35	36	60
Dong Nai	45	30	45	75
Da Nang	40	50	30	90
Ha Noi	70	50	46	25

What is the total cost of the whole plan and the total number of cases delivered from Dong Nai to Tay Nguyen to optimize the shipping plan?

A. TC = 1346; n = 6

B. TC = 1219; n = 5

C. TC = 1425; n = 7

D. TC = 1527; n = 7

By mid-October 2024, the Suez Canal crisis disrupted global supply chains, prompting companies to increase safety stock to maintain stable supply. Many companies relied on safety stock to avoid production delays. This strategy has become crucial for protecting businesses against supply chain risks. The APICS Dictionary, 15th edition, defines safety stock as a quantity of stock planned to be in inventory to protect against fluctuations in demand or supply.

Which of the following is **TRUE** regarding safety stock?

- A. Organizations can use experience or intuition to set safety stock at a location at a fixed level.
- B. Higher confidence in the demand forecast increases the need for safety stock.
- C. Medical and pharmaceutical companies often keep low levels of some safety stocks to address risk of a pandemic.
- D. To provide protection against peaks in demand, safety stock is set to match the minimum variation in demand at a desired customer service level.

SCompany is producing components with SKU 375-8469 for an order of 120 pieces due on day 210. The lot is currently in the queue at Operation 3. The facility is currently running 8 hours per shift.

Operation	Standard hours per piece	Pieces produced through day 195
1	0.05	121
2	0.15	120
3	0.1	60
4	0.2	0
5	0.02	0

Based on the information in the above table, what is the priority for Operation 3 on day 195 calculated based on the slack time rule (in days) per remaining operation?

A. 2.74

B. 0.58

C. -2.43

D. 3.65

The internet has enabled electronic purchasing not only for consumers (e-commerce) but also between businesses (e-procurement). ERP systems now often include e-procurement features and interfaces. Key developments in e-procurement include: sell-side systems, buy-side systems, product exchanges, and marketplaces.

How many statements of the following are **FALSE** regarding ERP systems?

1. A buy-side system is a system on the Internet provided by a supplier for the procurement of certain goods.
2. An electronic marketplace is a website where supply meets demand.
3. In product exchange, suppliers of goods post their offerings, potential buyers post requests for the goods they require.
4. Business-to-business marketplaces exist either within industries or across industries.
5. In a sell-side system, the supplier runs the system, specifies the prices of the goods offered, sets the rules, and prescribes how customers should use the system.
6. The intermediary's services include support for matching supply and demand with the help of advanced search functionality in an electronic marketplace.
7. A sell-side system is provided by a company inviting offers (bids) from suppliers.
8. In the electronic marketplace, besides providing product catalogs and search features, a marketplace supports negotiations between the market participants, helps them in the preparation and execution of a transaction, and provides a secure payment mode.

A. 3

B. 5

C. 4

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Capacity Planning and Control is the task of setting the effective capacity of the operation so that it can respond to the demands placed upon it.

Which following statement is **CORRECT** about Capacity Planning and Control?

- A. A part of operation operating at its capacity 'ceiling' helps to mitigate the capacity constraint for the whole operation
- B. The quality of goods or services is not affected by a capacity plan
- C. The first step of Capacity Planning and Control is to measure the aggregate capacity
- D. Forecasting is a key input to Capacity Planning and Control decision

How many statement(s) of the following is (are) **CORRECT** about EDI?

1. Nonphysical cost savings include the labor costs of finding and dealing with errors that are introduced during data entry.
2. Data accuracy is higher when data is manually transferred.
3. Data needs to be verified a second time when the SAP system receives it.
4. A web-based EDI may be most appropriate if a company has no technology staff or does not have the capability to implement EDI.
5. A virtual private network (VPN) private network that provides a secure environment for EDI information to be exchanged between trading partners.
6. A value-added network (VAN) is a facility that uses the public communication infrastructure to conduct private communications.
7. A VPN authenticates users, encrypts data, and manages private communications.
8. A company can have an account with a VPN, which acts as an electronic mail box where companies can send and receive EDI documents.
9. AS2 is a type of EDI and a communication protocol used to exchange EDI documents.
10. A value-added network (VAN) is available for companies to implement offer a wide array of products that suit companies that have no technology department through to companies that have hundreds of IT consultants.



A. 5



B. 4



C. 2



D. 7

Lean requires the plant layout to be designed to ensure a balanced workflow with a minimum of work-in-process inventory. There are some concepts related to the lean supply chain, which are illustrated in the below table.

Lean Concepts	Description
1. Lean Production	a. Instead of transferring jobs from one specialized department to another, it considers all operations required to make a part and groups those machines together.
2. Kanban pull system	b. Calculating how many of each part were used in production and using these calculations to adjust actual on-hand inventory balances. This eliminates the need to track each part used in production.
3. Uniform plant loading	c. Integrated activities designed to achieve high-volume, high-quality production using minimal inventories of raw materials, work-in-process, and finished goods.
4. Group Technology	d. It is emphasized to ensure that flows are not interrupted by downtime or malfunctioning equipment.
5. Backflush	e. Smoothing the production flow to dampen schedule variation.
6. Preventive Maintenance	f. An inventory or production control system that uses a signaling device to regulate flows.

Match each concept to the most suitable description in the table.

A. 1 - c; 2 - f; 3 - e; 4 - a; 5 - b; 6 - d

B. 1 - f; 2 - c; 3 - d; 4 - e; 5 - a; 6 - b

C. 1 - d; 2 - b; 3 - f; 4 - e; 5 - a; 6 - c

D. 1 - f; 2 - c; 3 - d; 4 - b; 5 - e ; 6 - a

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At the end of the year, it always rains in Quang Nam for 5 random days of the week. John is a curious tourist visiting Quang Nam during this period.

If John takes an umbrella with him only on odd days of the week, which of the following is closest to the probability that the tourist will not get wet on a given day?

- A. 41%
- B. 59%
- C. 69%
- D. 31%



LS Manufacturing is evaluating the optimal location for its new plant to serve three key customers situated in cities A, B, and C. The table below indicates that each customer requires multiple daily deliveries.

Location	Coordinates (miles)	Deliveries per day
A	(100,200)	8
B	(400,100)	4
C	(100,100)	3

Which of these three locations yields the smallest total travel distance?

- A. Location C with 1,324.8 miles
- B. Location A with 1,564.8 miles
- C. Location B with 1,564.8 miles
- D. Location B with 2,000 miles

Question 1 of 40



Product flow analysis illustrates the logical flow of processes that materials go through to be transformed into finished goods. Product flow analysis also plays a crucial role in the Theory of constraints since system control points can also be identified and managed.

Match the conceptual flow in the logical flow of materials with the right following characteristics:

1. V-plants	a. flow in which complicated products are assembled from various subcomponents
2. A-plants	b. single flow with similar finished products assembled from common parts
3. T-plants	c. a flow that begins with one or few raw materials and expands to a wide range of products
4. I-plants	d. simplest flow and use continuous flow process

- A. 1 - b; 2 - a; 3 - d; 4 - a
- B. 1 - b; 2 - c; 3 - a; 4 - d
- C. 1 - c; 2 - a; 3 - d; 4 - b
- D. 1 - c; 2 - a; 3 - b; 4 - d



Containerization enables the creation of an intermodal freight transport system, allowing goods to be efficiently transferred in bulk between different modes of transportation with minimal complexity.

How many statements are **CORRECT** about the attributes of containers and container systems?

1. Insurance charges are lower due to the reduced damage potential
2. The process of product handling is easier, as it is distributed from a point of origin to a point of destination
3. Special facilities and handling equipment are relatively affordable, making transfer points widely available
4. There is a reduction in handling costs at the docks and at other modal interfaces
5. The initial cost of containers is quite low, contributing to its popularity in freight transport
6. Returning empty containers is rarely an issue as trade routes are highly balanced
7. Documentation is simpler

A. 4

B. 2

C. 5

D. 3

LS Brew, a producer of premium coffee pods, operates with a daily production capacity of 1,000 units. The company currently sells its pods at \$0.50 each, and at this price point, the entire capacity is typically booked one week in advance. However, some customers have indicated a willingness to pay a premium price of \$1 per pod if LS Brew could guarantee availability on the last day. Forecasts made 10 days ahead reveal that demand for the premium-priced segment follows a normal distribution with a mean of 225 pods and a standard deviation of 75 pods.

How much of its production capacity should LS Brew reserve on the final day?

- A. 225 units
- B. 250 units
- C. 500 units
- D. 750 units

How many statement(s) of the following is (are) **CORRECT** about EDI?

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10. A value-added network (VAN) is available for companies to implement offer a wide array of products that suit companies that have no technology department through to companies that have hundreds of IT consultants.

A. 5

B. 4

C. 2

D. 7

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FTCompany is a renowned manufacturer and retailer specializing in the production of seasonal mooncakes, offering a diverse selection of flavors specifically curated for the Mid-Autumn Festival. The company's sales forecast projects quarterly demand of 4,280, 5,060, 6,452, and 8,600 units, respectively.

Based on these projections, develop a level production plan that ensures consistent output across all quarters. Additionally, calculate the ending inventory for each quarter, as well as the average inventory per quarter.

Given that the inventory carrying cost is \$5 per unit per quarter, determine the total annual cost of maintaining inventory. Assume that both the opening and ending inventories are zero.

- A. 35,880
- B. 29,060
- C. 25,000
- D. 17,940

LS Clothing is a wholesaler company that is looking for the best manufacturing vendor. The following information is available from the record of the incoming material department of LS Clothing.

Vendor code	No. of lots submitted	No. of list accepted	Unit price in \$	Fraction of delivery commitment
A	15	12	15.00	0.94
B	12	9	18.00	0.98
C	1	1	21.00	0.90
D	10	9	19.00	0.95

Determine the vendor with the best performance knowing that the factor weightage for quality, delivery, and price are 40%, 35%, and 25%.

- A. Vendor A
- B. Vendor D
- C. Vendor B
- D. Vendor C

The following information is available for LStorage safety stock:

Item Category	Constant Service Level			Mixed Service Level		
	Service Level	Forecast Error (σ)	Safety Stock	Service Level	Forecast Error (σ)	Safety Stock
A	95%	100	234	95%	100	234
B	95	100	234	85	100	114
C	95	100	234	70	100	68

Calculate the percent of savings in safety stock inventory.

- A. 38%
- B. 57.25%
- C. 68.75%
- D. 75%

Many companies are adapting with the pressure of the market by creating organizational structures that promote cross-functional and cross-organizational communication, coordination, and collaboration. Thus, cross-functional sourcing teams have become a critical part of supply management strategies and practices.

1. It brings together employees from several departments in order to accomplish a supply management or supply chain-related tasks such as product design or supplier selection, as well as in charge of lowering the cost of purchased goods or enhancing their quality.
2. When a team does not complete its task in the best or most efficient manner or members are not motivated to employ their resources to create a successful outcome, it creates process loss.
3. It is best for companies to consider this team approach when the company is faced with a sophisticated or medium-scale business decision or when an individual comes up with the solution instead of team contribution.
4. Firms commit the energy needed to form teams to realize specific performance benefits such as separated ownership of decisions, enhanced communication between functions or organizations and realizing synergies by combining individuals and functions.
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6. Rewards and recognition, which are useful tools for leaders to enhance employee's contribution and loyalty toward their job, are categorized into four groups including executive recognition, monetary bonuses and other one-time cash awards, nonmonetary rewards and merit raises awarded during the team member's annual performance review.

How many statements are **INCORRECT** about cross-functional sourcing teams?

- A. 4
- B. 5
- C. 3

Total productive maintenance is a concept for maintaining plants and equipment to increase production and employee morale. This concept makes maintenance a necessary and important phase in businesses' production.

How many of the following statements about the TPM concept are **NOT** correct?

1. Total productive maintenance (TPM) and Total quality management (TQM) both require higher level management to commit to the program.
2. Total productive maintenance (TPM) focuses on the inputs and effects while Total quality management (TQM) focuses on outputs and causes.
3. There are 9 pillars in the TPM concept which are: 5S; Jishu Hozen; Kaizen; Planned Maintenance; Quality Maintenance; Autonomous Maintenance; Training; Office TPM; Safety, Health, and Environment.
4. Seiri focuses on organizing and sorting items and the worth of the item should be determined according to its utility and cost.
5. Jishu Hozen enables workers to spend more time on value-added activities by educating and training.
6. Training aims to enhance employees skills and increase their morale to perform tasks effectively and independently.
7. Kaizen achieves and sustains zero losses by eliminating 15 major losses through tools such as PM analysis, 5-Why analysis, Kaizen register, and Summary of losses.

A. 4

B. 1

C. 3

D. 2

Organizations face the challenge of deciding what to produce internally versus what to buy externally. This includes sourcing raw materials, semifinished products and components, finished products, MRO (maintenance, repair, operating) items, production support items, services, and capital equipment.

Which of the statements are **CORRECT** about these types of purchases?

1. Raw materials include all the items bought from suppliers to support an organization's final production.
2. Semifinished products and components are not of equal quality, and they lack processing by the supplier into a newly formed product.
3. The purchasing team must collaborate closely with the finished product manufacturer to ensure it meets the technical and quality standards required by engineering and end customers.
4. Organizations often have a limited number of MRO suppliers to streamline procurement processes.
5. Production support items include spare machine parts, office and computer supplies, and cleaning supplies.
6. Long-term contracts with service providers are becoming less common in many organizations.
7. Capital equipment purchases do not occur with regular frequency.

A. (3), (7)

B. (1), (2), (5)

C. (1), (3), (4)

D. (1), (3), (4), (6)

The SCOR model serves as a process reference model to help its corporate members deal with the increasing SCM problems. The SCOR model helps stakeholders in the extended supply chain deal with issues that arise from suppliers to customers.

Here is the list of statements about the SCOR model:

1. Corporate and functional strategies are impacted by the SCOR model mainly through CRM and SRM procedures.
2. Through transactional operations pertaining to the plan, source, make, deliver, and return functions, the SCOR model links business partners.
3. The SCOR model aims to ascertain to what extent each business process involves all corporate activities.
4. The revenue ramifications of every action taken by supply chain partners are the main emphasis of the SCOR model.
5. Enhancing asset utilization, cutting costs, and increasing operational efficiency are the main goals of the SCOR model.
6. The SCOR model is based on the workflow reengineering process to guarantee the integration of the three main functions: production, logistics, and purchasing.

Which of the above statements is **TRUE** about the SCOR model? Choose the option that has the most correct statements.

- A. 2; 3; 6
- B. 2; 5; 6
- C. 2; 3; 5
- D. 1; 2; 4

IceShaky Inc. is a temperature-controlled logistics company located in Ho Chi Minh city. The forecast number of average inventories for an organization takes up 25,000 cubic meters (m^3) in the highest forecasted year of a five-year plan. The size of a standard pallet when it is filled completely by all inventory is: 1.2 meters deep x 1.0 meters wide x 1.5 meters tall = $1.8 m^3$. The company's historical analysis based on warehouse usage indicates that a factor of 1.1 is needed to be considered to account for partially filled pallets.

Calculate the storage bays needed (Round to the nearest whole number)

A. 15,737

B. 15,278

C. 26,457

D. 17,326

LSC Manufacturing is a manufacturer that specializes in producing materials and parts for the HVAC (heating, ventilation, and air conditioning) sector. One of its plants manufactures different-sized aluminum ducting for the residential building industry. Round metal ducting with a 6-inch diameter is one such product. Despite being a straightforward product, the final ducting's diameter is crucial. It will be challenging for contractors to install the ducting into other system components if it is too big or too small. The ultimate goal of diameter is 6 inches but a tolerance of ± 0.03 inches is permissible. Anything that is manufactured outside of specification is deemed defective. The final product's actual diameter, according to statistics provided by the line supervisor, is 5.99 inches, with a standard deviation of 0.01 inches.

Without altering the process variance, the line supervisor believes he can modify the procedure to bring the mean output diameter to match the goal diameter.

If he succeeds, what would the capability index be? How likely is it that this modified method would result in a damaged unit? Should he reduce the variation in the process?

- A. $C = 2$; $p = 0.0033$; he should reduce the variation in the process
- B. $C = 2$; $p = 0.0029$; he should not reduce the variation in the process
- C. $C = 1$; $p = 0.0027$; he should reduce the variation in the process
- D. $C = 1$; $p = 0.0019$; he should not reduce the variation in the process

Storage equipment is used to hold or store materials for a specific time period. Their designs along with their use in the design of the warehouse represent an exchange between reducing handling costs and maximizing space utilization.

Here is the table describing some types of storage systems:

Storage system	Description
1. Push-back Rack	a. The mechanism, which is an interlocking unit, permits the stacking of loads to prevent crushing.
2. Block Stacking	b. Racks are used for storing long loads, such as pipes and bars, in which the front supporting and front upright beams are removed.
3. Flow-through Rack	c. These are used in those activities that do not need much headroom and need at least 14 ft. of clear space.
4. Drive-through Rack	d. In this system, many rows of racks can be accessed with just one moveable aisle.
5. Selective Pallet Rack	e. This sort of storage is the least expensive and is most frequently used for bulk storage, which includes using cubes. It does not require any kind of storage media, but it restricts the accessibility of materials.
6. Sliding Rack	f. Upright beams are fastened to rails that support loads. Similar width loads are required.
7. Cantilever Rack	g. It may support unit load types other than pallets, like drums,

7. Cantilever Rack	g. It may support unit load types other than pallets, like drums, coils, and skids, by using decking and specialized rack attachments.
8. Stacking Frame	h. Loads are supported on an inclination for enabling gravity-based load movement within the rack.
9. Mezzanine	i. In this system, the bottom end is the place where materials are loaded and unloaded, and the upper end is closed to allow LIFO.

Match each storage system to the most suitable description of its characteristics.

- A. 1 - d; 2 - b; 3 - g; 4 - a; 5 - e; 6 - c; 7 - e; 8 - f; 9 - h
- B. 1 - i; 2 - e; 3 - h; 4 - f; 5 - g; 6 - d; 7 - b; 8 - a; 9 - c
- C. 1 - h; 2 - a; 3 - f; 4 - c; 5 - i; 6 - b; 7 - g; 8 - d; 9 - e
- D. 1 - c; 2 - h; 3 - e; 4 - i; 5 - d; 6 - a; 7 - f; 8 - g; 9 - b

Containerization enables the creation of an intermodal freight transport system, allowing goods to be efficiently transferred in bulk between different modes of transportation with minimal complexity.

How many statements are **CORRECT** about the attributes of containers and container systems?

1. Insurance charges are lower due to the reduced damage potential
2. The process of product handling is easier, as it is distributed from a point of origin to a point of destination
3. Special facilities and handling equipment are relatively affordable, making transfer points widely available
4. There is a reduction in handling costs at the docks and at other modal interfaces
5. The initial cost of containers is quite low, contributing to its popularity in freight transport
6. Returning empty containers is rarely an issue as trade routes are highly balanced
7. Documentation is simpler

A. 4

B. 2

C. 5

D. 3

A production plan is a roadmap that aligns a company's manufacturing capabilities with market demand and business objectives. It ensures efficient resource use while meeting customer needs. To achieve these goals, businesses typically adopt one of three key strategies: (1) the chase strategy, (2) production leveling, or (3) subcontracting.

Match these strategies (1), (2), (3) with their respective attributes (a-g)

- a) Avoids costs of hiring, layoffs, and overtime but incurs inventory carrying costs.
- b) Produces exactly what is demanded at any given time; minimal inventory buildup.
- c) Suitable for industries where inventory cannot be stockpiled.
- d) Best for products for which demand is highly seasonal.
- e) Suitable for companies wanting to keep confidential processes, maintain quality levels, and maintain workforce.
- f) Produces at the level of minimum demand and meets any additional demand by buying extra amounts or turning away extra demand.
- g) Requires high capacity to be able to meet the peak demand.
- h) Avoids excess capacity costs but may involve higher purchasing and inspection costs.

A. (1) - e, f, h; (2) - a, d, g; (3) - b, c

B. (1) - e, f, g; (2) - a, d; (3) - b, c, h

C. (1) - b, c, g; (2) - a, d; (3) - e, f, h

D. (1) - b, c, (2) - a, d, g; (3) - e, f, h

SCMilk is a leading dairy brand known for producing high-quality milk and dairy products in Vietnam. With a commitment to freshness and nutrition, SCMilk offers a range of products that cater to the diverse needs of consumers. Star drink yogurt represents a significant percentage of its sales. The demand for Star drink yogurts is 10,000 bottles per month. SCMilk incurs a fixed order placement, transportation, and receiving cost of \$100 each time an order for Star drink yogurt is placed with the manufacturer. SCMilk incurs a holding cost of 20 percent. The manufacturer uses the following all unit discount pricing schedule.

Order Quantity	Unit Price
0-4,999	\$3.00
5,000-9,999	\$2.96
10,000 or more	\$2.92

Evaluate the number of bottles that the SCMilk manager should order in each lot.

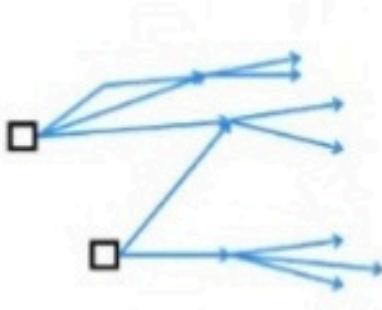
- A. 6,324
- B. 1,265
- C. 5,000
- D. 10,000

Electronic data interchange, commonly known as EDI, is a standard format for exchanging data. The standard is ANSI X12, and it was developed by the Data Interchange Standards Association. EDI is used throughout the business world to move data from one company to another, known as trading partners.

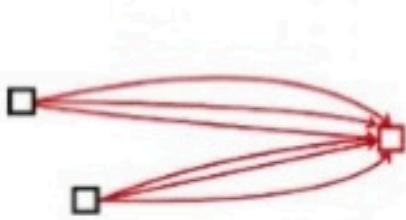
How many statement(s) of the following is (are) **CORRECT** about EDI?

1. Nonphysical cost savings include the labor costs of finding and dealing with errors that are introduced during data entry.
2. Data accuracy is higher when data is manually transferred.
3. Data needs to be verified a second time when the SAP system receives it.
4. A web-based EDI may be most appropriate if a company has no technology staff or does not have the capability to implement EDI.
5. A virtual private network (VPN) private network that provides a secure environment for EDI information to be exchanged between trading partners.
6. A value-added network (VAN) is a facility that uses the public communication infrastructure to conduct private communications.
7. A VPN authenticates users, encrypts data, and manages private communications.
8. A company can have an account with a VPN, which acts as an electronic mail box where companies can send and receive EDI documents.
9. AS2 is a type of EDI and a communication protocol used to exchange EDI documents.
10. A value-added network (VAN) is available for companies to implement offer a wide array of products that suit companies that have no technology department through to companies that have hundreds of IT consultants.

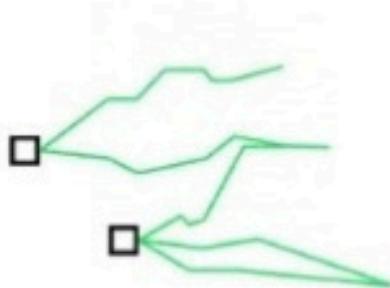
Question 2 of 40



1.



2.



3.

Match the illustrations that correspond to the type of transportation networks.

- A. 1- Operational network, 2- Strategic network, 3- Physical network
- B. 1- Strategic network, 2- Operational network, 3- Physical network
- C. 1- Physical network, 2- Service network, 3- Strategic network
- D. 1- Service network, 2- Physical network, 3- Operational network



56

3

49

27

18

74

62

19

8

35

65

92

?

34

81

What number should be replaced with the question mark?

 A. 5 B. 15 C. 13 D. 7

Collaboration is a business arrangement that changes the overall dynamics between two or more partners. It is a wide range of joint activities, from information sharing among business units to complex, long-term product development and marketing projects.

Which type of collaboration is often used for electronic data interchange (EDI)?

- A. Cooperative collaboration
- B. Coordinated collaboration
- C. Transactional collaboration
- D. Synchronized collaboration

The insatiable demand for speed and efficiency is driving the exponential growth of global e-commerce sales, pushing supply chains into uncharted territory. However, this surge in e-commerce presents challenges, as the influx of shipments places immense strain on **Customs and Border Protection (CBP)**, the agency tasked with enforcing trade regulations and safeguarding the nation's borders in the US.

Which of the statements is **INCORRECT** about the requirement of CBP to balance the security concerns with the need to ensure the smooth flow of goods?

- A. Modify the deadline for detailed transmission to "within 15 days" in the Federal Register Notice
- B. Leverage Section 321 "de Minimis", a provision that places duty and tax-free import of goods valued less than \$800,000
- C. Encourage the trade community to provide broad and generic descriptions to speed up the customs process
- D. None of the above

LS Harvest supplies premium organic fruits and vegetables to specialty grocery stores in the state of California. The company loads its delivery truck in (A) and completes a single delivery route to five customers located across the state.

The distances in miles between all locations are shown in the table below:

From/To	(A)	(B)	(C)	(D)	(E)	(F)
(A)	-	225	234	233	169	189
(B)	289	-	159	244	265	168
(C)	234	159	-	253	246	197
(D)	233	244	253	-	153	287
(E)	169	265	246	153	-	171
(F)	189	168	197	287	171	-

Determine the most efficient route for LS Harvest's delivery truck by calculating six different routes, each starting from one of the six customer locations. What is the total distance traveled for that best route?

- A. 1,018 miles
- B. 939 miles
- C. 1,091 miles
- D. 1,111 miles

Emirates NBD has won the Procurement Transformation Award at The Global Procurement & Supply Chain Awards 2024. Emirates NBD, a leading financial institution in the GCC region, has undergone a remarkable procurement transformation as part of its aggressive expansion into Saudi Arabia. Key to this success was the integration of AI for predictive analysis.

What is the purpose of Emirates NBD's AI-powered predictive analytics?

- A. To improve purchase order delivery times
- B. To monitor employee productivity
- C. To enhance strategic sourcing and decision-making
- D. To replace human decision-making

Question 7 of 40



According to Ship Technology, Yangshan Port, operated by the Shanghai International Port Group (SIPG), has gained international recognition for its innovations in maritime logistics.

Using an advanced automated system allows for simultaneous loading and unloading operations, what is Yangshan Port primarily known for?

- A. High-speed rail connections
- B. Eco-friendly shipping practices
- C. Automated cargo handling
- D. Largest container throughput

An automated storage/retrieval system (AS/RS) refers to a combination of equipment and controls that handles, stores, and retrieves materials with precision, accuracy, and speed under a specific degree of automation. There are four types of automated storage/retrieval systems: unit load, miniload, man-on-board, and automated item retrieval. Match the types of AS/RS with the appropriate characteristics.

1. Unit load AS/RS	a. High-density unit load storage system with a small number of separate types of materials.
2. Miniload AS/RS	b. Items are stored in single-file lanes rather than in bins or drawers, thus enabling FIFO inventory control.
3. Man-on-board AS/RS	c. Is generic, computer-controlled AS/RS.
4. Automated item retrieval system	d. Used to handle individual parts or supplies and often enclosed for the security of the items stored.
5. Deep-lane AS/RS	e. Allow individual items to be picked directly at storage locations and reduce transaction time.

A. 1 - d; 2 - a; 3 - e; 4 - b; 5 - c

B. 1 - c; 2 - b; 3 - a; 4 - e; 5 - d

C. 1 - d; 2 - b; 3 - c; 4 - a; 5 - e

Question 10 of 40



LSCompany operates its own warehouse in order to increase its control over the inventory. They use ABC classification for cycle counting. A items are counted weekly, B items have a longer counting cycle up which is quarterly and C items are counted annually. The warehouse has 278 workdays in total. Provided that there are 2000 A items, 3600 B items, and 28000 C items.

How many items are counted each day?



- A. 601 items
- B. 645 items
- C. 526 items
- D. 527 items

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LSCompany is one of the leading players in the furniture market located in Ho Chi Minh City. The company needs to make a wooden coffee table that requires an overhead (fixed) cost of \$2425 and a vanable unit cost of \$8.40 per unit. Assuming that the selling price of the table is \$13.40 and the company sells 2500 tables monthly.

What is the break-even point?

- A. 485
- B. 584.
- C. 485.6
- D. 458.6

SCM Office Supplies is a prominent retailer specializing in office electronics, including a wide range of phones. The store faces a weekly demand for phones that is normally distributed, with an average (mean) demand of 2,500 units and a standard deviation of 400 units, indicating some variability in customer purchases. The company sources its phones from a manufacturer that requires a three-week lead time to fulfill orders once they are placed. To manage its inventory and avoid stockouts, the store manager has implemented a policy to reorder 12,000 phones whenever the inventory on hand falls to 7,800 units, a level known as the reorder point.

Evaluate the average inventory carried by SCM Office Supplies under the current ordering policy.

A. 7,500

B. 300

C. 6,300

D. 6,000

Rough-cut capacity planning (RCCP) is the process of interpreting the master production schedule into requirements for essential resources, which frequently include supplies, labor, equipment, warehouse space, and, occasionally, financial resources. For every important resource, a comparison to demonstrated or available capacity is typically made. The master scheduler uses this comparison to help create a workable master production schedule.

Match the following characteristics of each process with the best stage in RCCP:

Stage	Characteristics
1. Preliminary Master Production Schedule	a. Based on the resources needed to produce one unit of the particular models or types of end items, it determines the essential raw materials for critical resources for each end item.
2. Critical resources	b. It is regarded as feasible if bottlenecks have adequate capacity. If these aren't feasible or cost-effective, it is made to be feasible.
3. Rough-Cut Capacity Planning	c. Labor and core materials that are currently limiting overall capacity at the item level may be included in the list.
4. Bill of resources	d. It confirms the MPS's critical resource (bottleneck) availability.
5. Master Production Schedule	e. It is created by the use of software with the input of product demand and the balances of inventory.



A. 1 - e; 2 - c; 3 - d; 4 - a; 5 - b

LSCar is a multinational company which specializes in producing, assembling electric cars and supplying them worldwide. Currently, the company is running the project of establishing a new type of car, which requires various tasks with related duration and processes illustrated in the below table.

Activities	Previous activity	Required time (weeks)		Cost	
		Normal	Crash	Normal	Crash
A	None	5	3	\$20,000	\$30,000
B	A	5	4	15,000	25,000
C	A	3	2	35,000	42,000
D	B	4	2	38,000	46,000
E	B, C	2	2	16,000	21,000
F	C	3	2	23,000	27,000
G	E, F	3	2	19,000	23,000
H	D, E	4	1	32,000	40,000
I	None	8	6	41,000	52,000

Which duties would be shortened in order to cut the project's duration by three weeks, and how much would the entire project cost?

- A. Task: B, D; TC = 25600
- B. Task: A, D; TC = 25300
- C. Tasks: A, D; TC = 25100
- D. Tasks: B, D; TC = 24600

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Question 5 of 40



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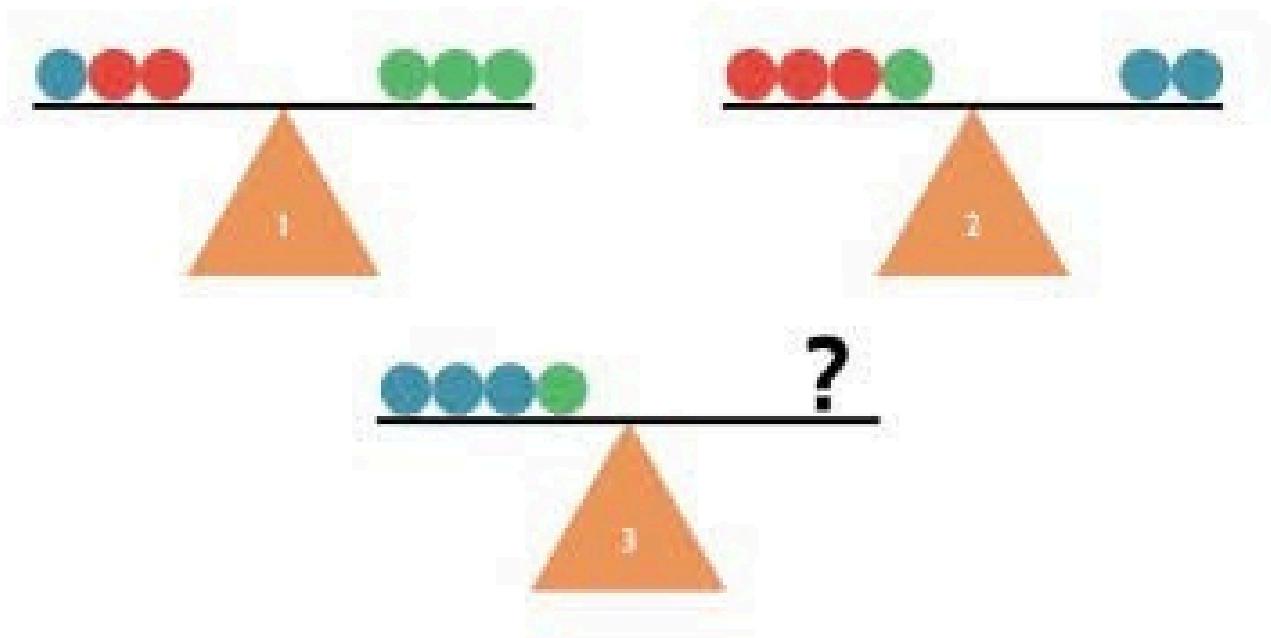
B. 1 - c; 2 - b; 3 - a; 4 - e; 5 - d

C. 1 - d; 2 - b; 3 - c; 4 - e; 5 - a

Question 8 of 40



Scale 1 and Scale 2 are balanced. How many red dots do we need to make Scale 3 balanced?



How many red dots do we need to make Scale 3 balanced?

 A. 8 B. 10 C. 32/5 D. 16

Question 12 of 40



LS Café sources coffee beans from a distributor. This coffee shop plans to buy 300,000 pounds of coffee beans annually. The purchase cost of the coffee beans is \$4 per pound. Additionally, the holding cost is \$6 per pound annually, and the order cost is \$200 per order.

Using the above information, determine the optimal order quantity and total annual inventory cost.

- A. 4362 pounds and \$1,226,832
- B. 4472 pounds and \$1,226,832
- C. 4362 pounds and \$1,005,785
- D. 4472 pounds and \$1,005,785



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Using an advanced automated system allows for simultaneous loading and unloading operations, what is Yangshan Port primarily known for?

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- B. Eco-friendly shipping practices
- C. Automated cargo handling
- D. Largest container throughput

Question 11 of 40



In the supply chain, the decoupling point is the boundary that separates the forecast-driven parts from the order-driven parts. Which of the following statements is NOT correct about the decoupling point?

- A. Moving the decoupling point downstream can lead to an increase in the service level.
- B. Moving the decoupling point downstream makes it easier to forecast the demand on that level.
- C. The lack of inventory at the decoupling point might cause a disturbance on the suppliers' side.
- D. The decoupling point determines the amount of safety stock to account for forecast errors.

What number should replace the question mark?

5	7	2	6				
2	1	3	2				
7	4	1	1				
3	8	6	9	7	8	3	
				2	1	4	7
				2	3	1	?
				6	2	8	5

A. 6

B. 1

C. 5

Question 14 of 40

The process of separating shipments from multiple manufacturers in a warehouse and reorganizing them into the specific quantities ordered by customers is best described as:

- A. Break-bulk
- B. Assortment
- C. Stockpiling
- D. Mixing

Locally produced, organic beef is the specialty of the retailer LSCommerce. The retailer observes that, with a mean of 22 lbs and a standard deviation of 2, the demand roughly resembles a normal distribution based on historical data. Beef is purchased by LSCommerce for \$12 per pound and sold for \$51 per pound. There is a stock out penalty of \$24.

LSCommerce decided to check the empirical distribution of the demand. In your record (the table below), demand has been rounded up to the nearest pound (lb).

Demand (lb)	Probability
20	0.05
21	0.15
22	0.22
23	0.17
24	0.12
25	0.09
26	0.09
27	0.08
28	0.03

Based on this empirical distribution, what are the expected units short and expected profit values?

- A. 0.12; 683
- B. 1.2; 1720
- C. 0.28; 972
- D. 0.14; 889

Question 16 of 40



Match each form of 3PL classifications to the correct definitions or characteristics.

1. Standard TPL provider	a. supplies customers with a relatively simple combination of standardized services such as warehousing, distribution, and pick and pack.
2. Service developer	b. is the most advanced form with high customer adaptation and general problem-solving ability by taking over logistics operations wholly.
3. Customer adapter	c. is an advanced modular system that offers a variety of advanced value-added services.
4. Customer developer	d. is considered as a part of the customer organization that provides solutions involving basic services and improves the efficiency in the handling, such as warehouse.

- A. 1-d; 2-a; 3-b; 4-c.
- B. 1-c; 2-a; 3-b; 4-d.
- C. 1-b; 2-a; 3-d; 4-c.
- D. 1-a; 2-c; 3-d; 4-b.

Question 17 of 40



Procurement is one of the most important tools for business executives because it helps improve profit margins and return on assets for the business through continuous improvement in cost reduction. When prioritizing cost reduction efforts, companies often apply a structured framework to reduce costs.

Given the following statements, how many statements are **INCORRECT**?

1. To maximize the profits achieved from the general item, businesses can encourage users to order these products or services directly.
2. Exploring value engineering/analysis opportunities, and sharing cost savings are fundamental strategies that overshadow collaborative efforts focused on identifying cost drivers, and integrating suppliers early in the product development cycle are priority strategies for managing critical items.
3. Companies strive to reduce costs for MRO items because even with few available suppliers, they are still high value.
4. Products that were once considered critical can move into the commodity quadrant if placed in a context where greater standardization is being applied in many industries.



A. 2



B. 1



C. 3



D. 4

According to ASCM, Material Requirements Planning (MRP) refers to a set of techniques that uses bill of material data, inventory data, and the Master Production Schedule (MPS) to calculate requirements for materials, the status and the plans of each single item are represented through the MRP time-phased record. Below are some key information of the MRP time-phased record:

1. Gross requirements	a. Being determined directly from ending inventory status in the previous round
2. Scheduled receipts	b. Being stated on a unique period-by-period basis, rather than being aggregated or averaged
3. Projected available balance	c. Having extra time bucket shown at the beginning
4. Planned order releases	d. Reporting the status of all open orders for the item

Match each term with its corresponding characteristic.

A. 1-b, 2-a, 3-d, 4-c



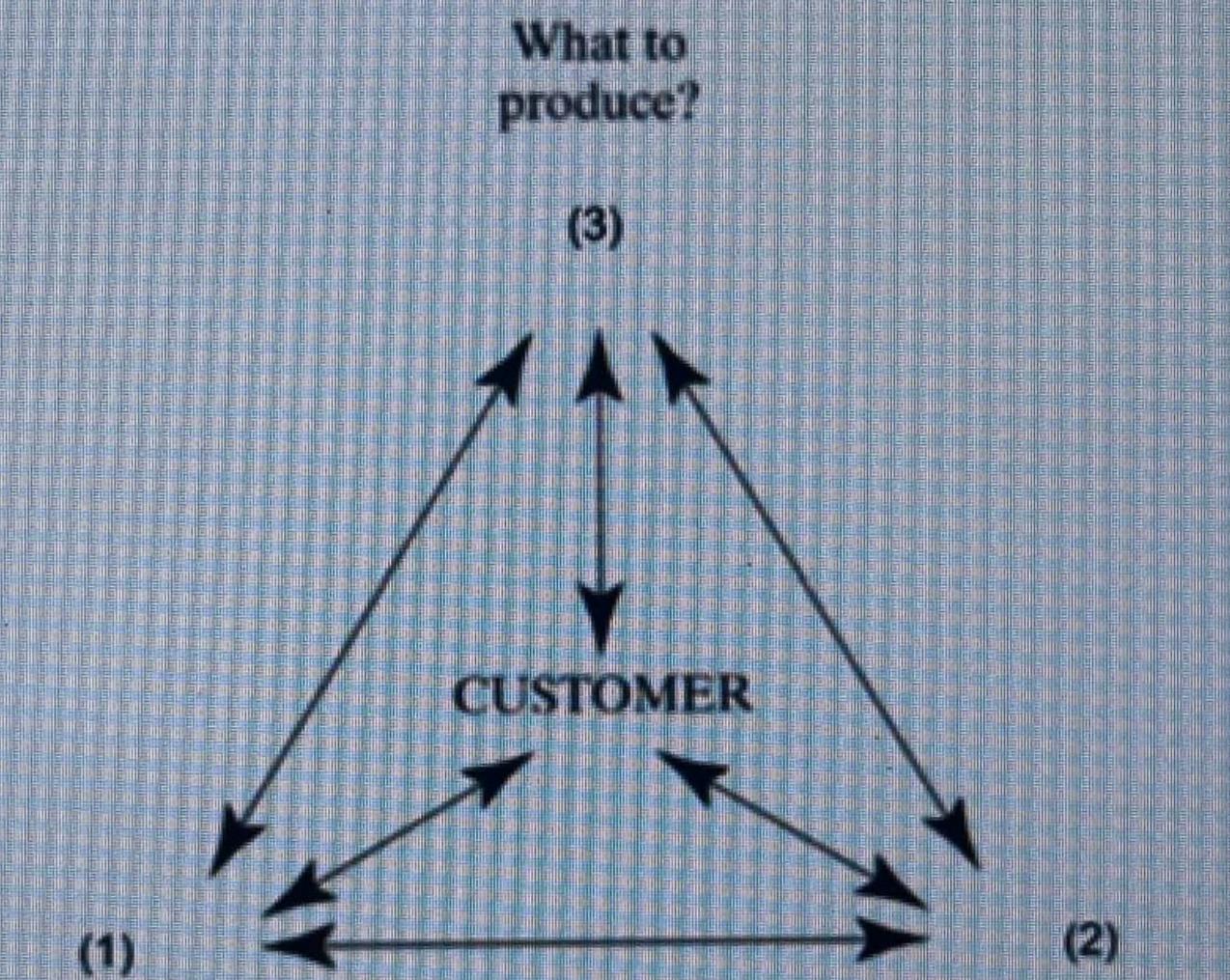
B. 1-d, 2-b, 3-a, 4-c

C. 1-b, 2-d, 3-c, 4-a

D. 1-a, 2-c, 3-b, 4-d

Manufacturing is considered an important stage in all production processes. Manufacturing one product requires consideration of many factors and balancing these factors is believed to help promote sales.

Fill in the blanks with the correct phrase:



- A. (1) process design, (2) capacity, (3) product design
- B. (1) process design, (2) product design, (3) capacity
- C. (1) product design, (2) capacity, (3) process design
- D. (1) product design, (2) process design, (3) capacity

Question 19 of 40



In planning, the specific characteristics of the supply chain type require different levels of focus on different planning tasks. In the computer assembly supply chain type, there are several attributes that affect the planning process.

1. Short materials' life cycle
2. Customized BOM
3. Convergent BOM
4. Material-constrained

Match the following features with the correct impacts on planning:

- i. Merge-on-the-fly
- ii. Configuration check
- iii. Master planning synchronizes materials
- iv. Demand-supply matching, component substitution
- v. High risk of obsolescence, markdown, phase-in, phase-out
- vi. Forecasts and safety stocks of final items, deployment, shortage planning

A. 1 - v, 2 - ii, 3 - iv, 4 - iii

B. 1 - i, 2 - ii, 3 - iv, 4 - vi

C. 1 - vi; 2 - iii, 3 - i, 4 - v

D. 1 - iii, 2 - iv, 3 - v, 4 - i

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Question:

LSGears, a manufacturer of smart home devices, is evaluating two suppliers for a critical component. The supplier charges \$4.80 per unit, has a lead time of 3 weeks with a standard deviation of 1 week, and requires a minimum order size of 500 units. The company's weekly demand averages 2,500 units with a standard deviation of 600 units. LSGears uses a continuous review policy, targets a 95% service level ($z = 1.645$), and has a holding cost rate of 30% per unit per year.

Assuming there are 52 weeks in a year, what is the supplier's total cost?

Options:

- A. \$607,772.77
- B. \$600,772.77
- C. \$567,270.52
- D. \$561,270.52

Question 20 of 40



Lean manufacturing is a production process that aims to maximize productivity while minimizing waste. The core idea of lean manufacturing is to relentlessly work on eliminating waste from the manufacturing process.

How many of the following statements are INCORRECT about the target types of waste of lean methods?

1. Defects: money and time wasted on finding and fixing mistakes and defects
2. Waiting: time lost because of people, materials, or machines waiting
3. Transportation: movement of people, materials, products, and information
4. Inventory: raw materials, works in process (WIP), and finished goods more than the one piece required for production
5. Motion: Any people and machine movements that add no value to the product or service
6. Over-processing: Tightening tolerances or using better materials than what are necessary

A. 3

B. 1

C. 2

D. 0



AI and big data are expected to bring remarkable progress to the logistics industry, helping businesses predict and quickly handle incidents effectively. There are some potential technologies applied to the supply chain operation with the goal of bringing efficiency to the system. For example, a company could create a digital simulation model as a "twin." This allows businesses to calculate the number of trucks and manpower needed to transport from point A to point B without having to test it in person. In addition, AI also helps companies to detect any KPI in the system, such as determining inventory turnover time. If the turnover time deteriorates, the unit immediately receives an alert.

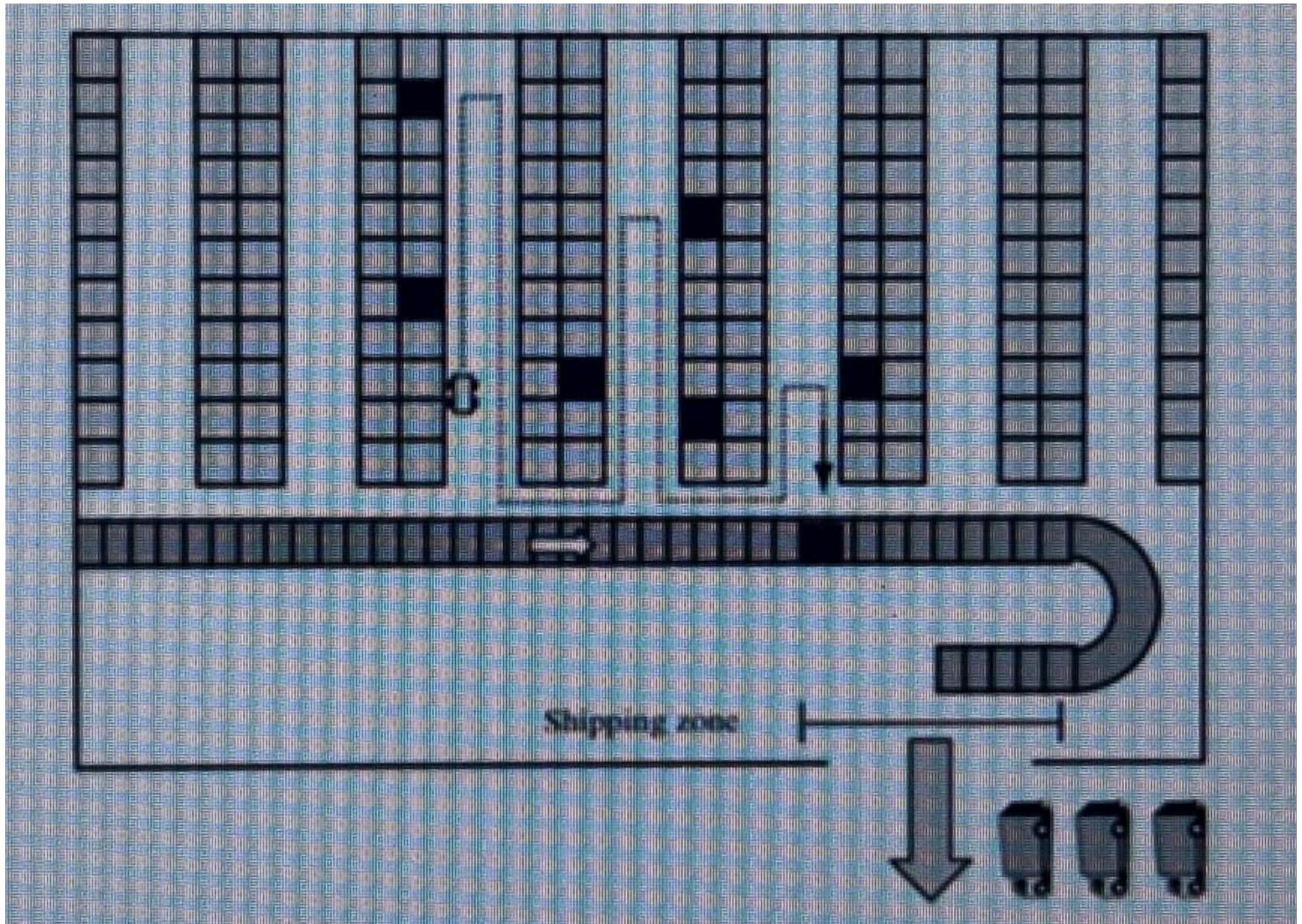
Question:

What are the technologies that are mentioned in the paragraph?

Options:

- A. Digital Twins, Predictive Analysis
- B. RPA, AI-Driven Monitoring
- C. VR&AR, Predictive Analysis
- D. Robots and Task-setting, Digital Twins

LSC has been distributing high-quality Vitamin C in Vietnam for over 7 years. Its warehouse, located in Long An Province, has a layout similar to the diagram below, featuring 17 aisles, each 30 meters long and 4.5 meters wide. Each pallet occupies an area of $1.2 \times 1.2 \text{ m}^2$. The vehicles used for picking goods travel at a speed of approximately 5.4 km/h, and it takes around 2 minutes to cross the shipping zone on foot. The warehouse processes an average of 500 orders per day, with each order containing an average of 25 items. In order to minimize the total workload, LSC uses the batch picking method. Given that the parameter a has been empirically set to 0.1, let's calculate the optimal batch size.



- A. 4
- B. 3
- C. 2
- D. 1

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Question 34 of 40



Globalization has led to a business environment without boundaries, where organizational focus on two key elements influencing the global market: customer satisfaction and product/service quality. To remain competitive, companies must enhance product quality while avoiding stockouts and disruptions. One effective strategy to achieve this is the implementation of Just-in-Time (JIT) manufacturing. This tactic enables you to keep the stock on hand to satisfy consumer demand even in the face of unforeseen difficulties.

Choose the **CORRECT** answers and specify the difference between Just-in-Time (JIT) manufacturing and Just-in-Cycle (JIC) manufacturing.

- A. JIC aims to minimize inventory carrying costs while JIT accepts higher carrying costs at a trade-off of increased risk aversion.
- B. In contrast to JIC, which runs with very low inventory levels, JIT intentionally keeps larger than necessary inventory levels and the execution of JIT focuses more on the management of process.
- C. JIT focuses on mitigating risk by keeping inventory levels low and producing goods only as needed, whereas JIC reduces risk by minimizing inventory holding costs, but it may be more susceptible to disruptions.
- D. Whereas JIC is better equipped to manage demand unpredictability and uncertainty, JIT works optimally when demand is steady and predictable.

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Order-picking methods in warehouses have developed with the innovation of technology to increase accuracy and productivity significantly.

Which statement(s) below is (are) **CORRECT** about order-picking methods?

1. Paper pick lists and pick by label are the two methods that are suitable to use in warehouses that have temperatures below -35 degrees standards.
2. Wearable scanners have a low pick rate and do not require the barcode, but they still have no problems with international standards.
3. Pick-to-light has a long implementation time, low flexibility, and difficulties with clustered orders.
4. Radio Frequency Identification can only read distances very short and be used for high-quality products.
5. Both pick-to-light and put-to-light can be used for goods-to-person and person-to-goods picking.
6. Wearable scanners and original voice-picking methods could be used to deal with multi-SKU locations.
7. Paper picking and pick by label have multiple-stage picking operations through two-stage update operation.

A. 2, 5

B. 2, 3, 6

C. 1, 7

D. 3, 4, 5

An operation's capacity is the maximum throughput of a given amount of time and is measured based on capacity, cycle times, setup times, lead times, and downtime. Capacity is the available capacity to perform the required work.

Which of the following are some ways to increase capacity rapidly and cost-effectively?

1. Reduce the speed of picking
2. Change tooling products to enhance utilization
3. Vary the lead time
4. Use a rework or assembly system
5. Use blocks to cushion demand
6. Make the equipment do several work
7. Extend plant utilization periods

A. 1, 2, 4, 5, 7

B. 1, 2, 3, 5, 7

C. 1, 7

D. 1, 6, 7

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SCMimic is a wholesaler that specializes in instant noodles. Based on the historical data, five "store observes that its weekly demand for instant noodles boxes is normally distributed with a mean of 2800 boxes and a standard deviation of 600. The replenishment lead time is 2 weeks.

Assuming a continuous - review replenishment policy, evaluate the safety inventory that the store should carry to achieve a CSL of 90 percent

- A. 1088
- B. 908
- C. 1011
- D. 1056

LSCorporation is a construction materials supplier that has just won a contract to supply bricks for an elementary school construction project in Binh Thanh District, Ho Chi Minh City. The company is currently considering two options: a local supplier and an overseas supplier. The first supplier can supply the product at a price of \$67 per unit, while the other supplier can supply the product at a cost difference of \$7 lower than the first supplier. The construction materials supplier is expected to sell 135,000 bricks at a price of \$85 to the aircraft manufacturer.

If LSCorporation fails to deliver the bricks on time, they estimate that they will incur a loss of reputation, future revenue, and fines of \$250,000. After considering the probability of suppliers not delivering products on time, the building materials company determines that there was a 95% chance that the overseas supplier would deliver on time and a 5% chance that they would not deliver. There was a 98% chance that the domestic supplier would deliver on time and a 2% chance that they would not deliver.

Calculate the expected values for each alternative and decide which supplier LSCorporation should choose:

- A. The expected value of the local supplier and the overseas supplier is \$3,266,250 & \$2,296,000, respectively. Choose an overseas supplier.
- B. The expected value of the local supplier and the overseas supplier is \$2,430,000 & \$53,375,000, respectively. Choose a local supplier.
- C. The expected value of the local supplier and the overseas supplier is \$3,266,250 & \$2,296,000, respectively. Choose an local supplier.
- D. The expected value of the local supplier and the overseas supplier is \$2,430,000 & \$53,375,00, respectively. Choose an overseas supplier.



Time left: 00:44:04



One of the primary forms of intermodal transportation is rail. Although this mode still has certain facilities issues, it is ideal for low-value, non-time-sensitive shipments and for transporting high-density goods over large distances.

Types of Transportation Mode	Description
RRT (Rolling Road Train)	A method of intermodal transportation, which involves moving things from one location to another, using a truck to deliver a loaded trailer and placing it on a flat rail car.
TOFC (Trailer on Flat Car)	A method of intermodal transportation, which involves moving things from one location to another, delivering a container, and placing it on a flat rail car.
COFC (Container on Flat Car)	A method of intermodal transportation, which involves moving things from one location to another, using a whole road train travels on a flat rail car.

Match the Types of Transportation modes with the **CORRECT** descriptions above.

- A. 1-a, 2-c, 3-d
- B. 1-c, 2-a, 3-b
- C. 1-a, 2-b, 3-c
- D. 1-a, 2-c, 3-b

Rough-cut capacity planning (RCCP) is the process of interpreting the master production schedule into requirements for essential resources, which frequently include supplies, labor, equipment, warehouse space, and, occasionally, financial resources. For every important resource, a comparison to demonstrated or available capacity is typically made. The master scheduler uses this comparison to help create a workable master production schedule.

Match the following characteristics of each process with the best stage in RCCP:

Stage	Characteristics
1. Preliminary Master Production Schedule	a. Based on the resources needed to produce one unit of the particular models or types of end items, it determines the essential raw materials for critical resources for each end item.
2. Critical resources	b. It is regarded as feasible if bottlenecks have adequate capacity. If these aren't feasible or cost-effective, it is made to be feasible.
3. Rough-Cut Capacity Planning	c. Labor and core materials that are currently limiting overall capacity at the item level may be included in the list.
4. Bill of resources	d. It confirms the MPS's critical resource (bottleneck) availability.
5. Master Production Schedule	e. It is created by the use of software with the input of product demand and the balances of inventory.

A. 1 - e; 2 - c; 3 - d; 4 - a; 5 - b

B. 1 - b; 2 - c; 3 - d; 4 - a; 5 - e

C. 1 - a; 2 - c; 3 - b; 4 - d; 5 - e

D. 1 - b; 2 - c; 3 - d; 4 - a; 5 - b

LSCar is a multinational company which specializes in producing, assembling electric cars and supplying them worldwide. Currently, the company is running the project of establishing a new type of car, which requires various tasks with related duration and processes illustrated in the below table:

Activities	Previous activity	Required time (weeks)		Cost	
		Normal	Crash	Normal	Crash
A	None	5	3	\$20,000	\$30,000
B	A	5	4	15,000	25,000
C	A	3	2	35,000	42,000
D	B	4	2	38,000	46,000
E	B, C	2	2	16,000	21,000
F	C	3	2	23,000	27,000
G	E, F	3	2	19,000	23,000
H	D, E	4	1	32,000	40,000
I	None	8	6	41,000	52,000

Which duties would be shortened in order to cut the project's duration by three weeks, and how much would the entire project cost?

- A. Task: B, D; TC = 25600
- B. Task: A, D; TC = 25300
- C. Tasks: A, D; TC = 25100
- D. Tasks: B, D; TC = 24600

Emirates NBD has won the Procurement Transformation Award at The Global Procurement & Supply Chain Awards 2024. Emirates NBD, a leading financial institution in the GCC region, has undergone a remarkable procurement transformation as part of its aggressive expansion into Saudi Arabia. Key to this success was the integration of AI for predictive analysis.

What is the purpose of Emirates NBD's AI-powered predictive analytics?

- A. To improve purchase order delivery times
- B. To monitor employee productivity
- C. To enhance strategic sourcing and decision making
- D. To replace human decision-making

Question 7 of 40



According to Ship Technology, Yangshan Port, operated by the Shanghai International Port Group (SIPG), has gained international recognition for its innovations in maritime logistics.

Using an advanced automated system allows for simultaneous loading and unloading operations, what is Yangshan Port primarily known for?

- A. High-speed rail connections
- B. Eco-friendly shipping practices
- C. Automated cargo handling
- D. Largest container throughput

SCM Office Supplies is a prominent retailer specializing in office electronics, including a wide range of phones. The store faces a weekly demand for phones that is normally distributed, with an average (mean) demand of 2,500 units and a standard deviation of 400 units, indicating some variability in customer purchases. The company sources its phones from a manufacturer that requires a three-week lead time to fulfill orders once they are placed. To manage its inventory and avoid stockouts, the store manager has implemented a policy to reorder 12,000 phones whenever the inventory on hand falls to 7,800 units, a level known as the reorder point.

Evaluate the average inventory carried by SCM Office Supplies under the current ordering policy.

- A. 7,500
- B. 300
- C. 6,300
- D. 6,000

Question 21 of 40



The total cost of ownership (TCO) estimates the overall expense of an item, encompassing the costs of procurement, usage, and eventual disposal once it is no longer needed.

How many statement(s) below are **CORRECT** about TCO?

1. Warranty and product liabilities are not part of the costs included in TCO
2. Acquisition costs are long-term costs of ownership
3. Ownership costs are incurred before the initial purchase and are associated with the ongoing use of the product or material
4. Aesthetic factors and ergonomic factors are not considered ownership costs
5. The costs related to employee productivity and fatigue are considered ownership costs
6. Net present value analysis is not part of TCO (Total Cost of Ownership) analysis

A. 2

B. 5

C. 3

D. 4

Collaboration is the means by which companies within the supply chain work together toward mutual objectives. An effective collaborative relationship has main strategic and financial benefits. Which of the following statements about collaboration is NOT true?

1. There is not a clear boundary between different levels of collaboration since it is a continuous process.
2. Transactional collaboration aims to reduce supply management costs occurring within making payments.
3. Synchronized collaboration is also known as strategic alliances with jointly developed information.
4. Coordinated collaboration includes a shared product data management system between parties.
5. Cooperative collaboration requires a two-way flow of information while coordinated collaboration needs one-way communication.
6. In cooperative collaboration, shared data should be provided in a standardized type and format.



The bottling plant at LSCompany probiotic health drink has a capacity of 180,000 liters a day and operates a five-day week. It fills standard 160 ml bottles delivered to a packing area, which can form 20,000 cases per day with 24 bottles each. The packing area works a six-day week. The cases are taken to distribution centers by a transport company whose 10 lorries can each carry 400 cases, and make up to 5 trips a day for 7 days a week. There are three main distribution centers, each of which can handle up to 30,000 cases a week. Local deliveries are made from the distribution centers by a fleet of small trucks that can handle everything the distribution centers send them.

How many cases of bottles can the company distribute to retailers in a week?

- A. 2,160,000
- B. 3,600,000
- C. 1,260,000
- D. 2,610,000

LSC Electronics, a manufacturing company that produces consumer electronic devices. The company relies on a variety of components and raw materials to assemble its products. To manage its inventory effectively and ensure smooth production, ABC Electronics uses a Material Requirements Planning (MRP) system. The MRP record for one of their critical components shows the projected requirements over the next 10 weeks.

Given this MRP record and the Economic Order Quantity (EOQ) set at 150 units for the component, calculate the planned order receipts to maintain optimal inventory levels. The EOQ model helps ABC Electronics determine the most cost-effective quantity to order, balancing the ordering costs with holding costs. After calculating the planned order receipts using EOQ, calculate the period order quantities and the total ending inventory carried over the 10-week period.



Week	1	2	3	4	5	6	7	8	9	10	Total
Net requirements	50	45	60	0	30	45	60	0	25	30	
Planned order receipts											
Ending inventory											

A. 720



B. 860

C. 580

D. 360

100%

LSCManufacturer is a large producer in Bien Hoa province which specialises in beverages. In one warehouse of the company, it uses a 100' - long roller-supported belt conveyor inclined at an angle of 12° , with a 9" spacing between rollers and a WBR value of 33". The company uses roller beds, not slider beds, for inclines; 35° is the maximum angle of incline for most situations. Suppose the conveyor is used to transport tote boxes of material, with each tote box being 18" long and weighing 40 lb, loaded. For stability of the load, it is recommended that a minimum of two rollers be under the load at all times; on an incline, three or more rollers should be under the load. A spacing of 12" is to be provided between tote boxes. The conveyor speed is planned to be 85 fpm. What is the approximate horsepower requirement for the conveyor? Given that 1 foot = 12 inches.

- A. 3.02 hp

- B. 2.52 hp
- C. 2.89 hp
- D. 3.23 hp



An e-catalog is a web page that provides information on products and services offered and sold by a vendor and supports online ordering and payment capabilities.

1. The buy-side catalog provides a purchaser advantage in reduced communication costs, and increased security, and many catalogs can be accessed via the same intranet application.
2. E-catalog enables suppliers to respond quickly to market conditions and requirements by adjusting prices and repackaging.
3. In the system of third-party catalogs, there are two types of product information: public encrypted and public information. While the public information will provide basic information including description and specification, encrypted information will include details of prices, discounts, and relevant matters.
4. Due to better vendor services and the ability to educate buyers about products they might be aware of, e-catalogs facilitate stronger relationships between buyers and wholesalers.



Which of the following statements about e-catalog is **INCORRECT**?

- A. 2

- B. 1
- C. 4
- D. 3

Question 28 of 40



Thomas runs a home appliances shop at Lang Chai. He regularly places advertisements in domestic agencies and is planning to elevate his advertising budget. Before proceeding, he decides to assess the past performance of these ads by developing a linear regression model. The table below illustrates data from the last 5 weeks:

SALES (\$1000s)	AD BUDGET THAT WEEK (\$100s)
12	6
7	3
11	7
6	2
12	6

Which of the following statements is **INCORRECT**?

- A. At a 5% significance level, the model is statistically significant
- B. The intercept is equal to 3.57
- C. For each \$100 increase in advertising cost, there is a corresponding \$1,255 increase in sales
- D. The advertisement budget explains 86% of the variation in that week's sales

Value chain analysis is a technique that looks at the processes that go into making a good or service in order to determine where value is created and where there is room for improvement. The value chain is divided into primary and support activities.

Choose the correct answer to complete the following diagram:

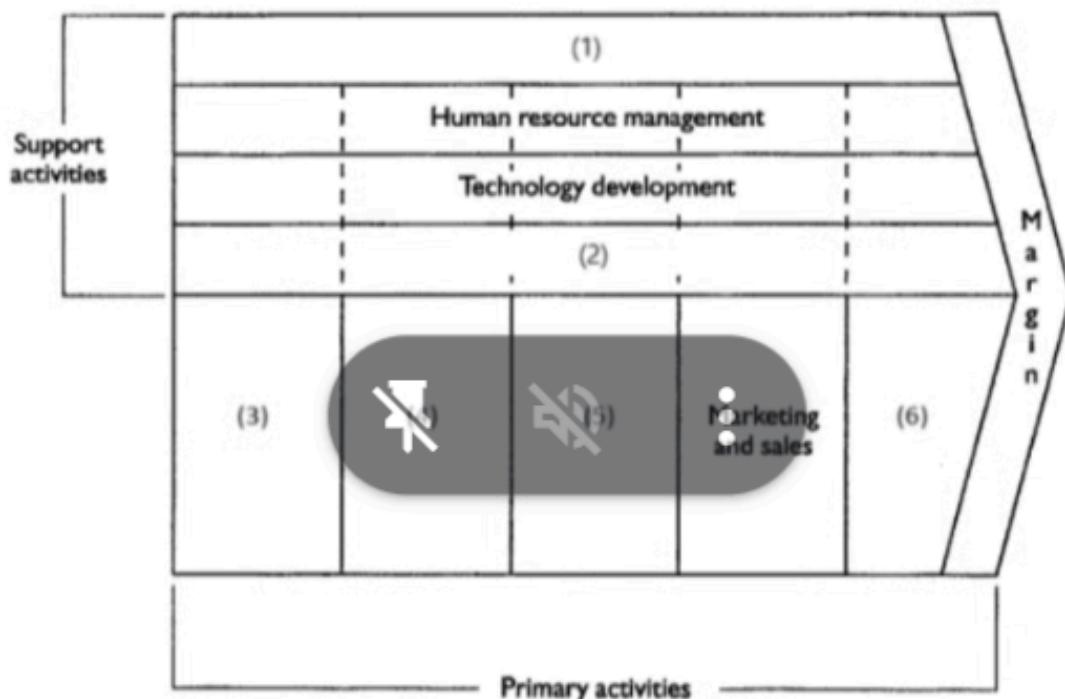


Figure 1.2 The value chain

- A. (1) Inbound Logistics, (2) Sourcing, (3) Operations, (4) Outbound logistics, (5) Procurement, (6) Firm infrastructure
- B. (1) Firm infrastructure, (2) Procurement, (3) Inbound logistics, (4) Operations, (5) Outbound logistics, (6) Service
- C. (1) Production, (2) Packing, (3) Transport, (4) Purchasing, (5) Operations, (6) Returns
- D. (1) Inbound logistics, (2) Service, (3) Distribution, (4) Operations, (5) Logistics, (6) Purchasing

Question 29 of 40



What is a key benefit of using responsive transportation in the supply chain?

- A. It eliminates the need for warehouses

- B. It allows inventories to be centralized
- C. It reduces the frequency of deliveries
- D. It increases product prices