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Exam Code: CPIM-Part-2

Exam Name: Certified in Planning and Inventory Management (Part 2)

Exam A

QUESTION 1
What is the purpose of a buffer in the theory of constraints (TOC)?

A. It allows for processing jobs at a lower rate than demand.
B. It prevents unplanned idleness of the resource.
C. It identifies the root cause of the constraint.
D. It opens an opportunity to exploit the system.

Correct Answer: B
Section:
Explanation:
A buffer in the theory of constraints (TOC) is a level of inventory that is placed before the governing constraint or the bottleneck to prevent it from being starved or idle. Buffers are used to immunize the system's performance from variability in demand or production. Buffers are part of the drum buffer rope method of scheduling and managing operations that have constraints. The purpose of a buffer in TOC is to prevent unplanned idleness of the resource, which is the most important factor that determines the throughput of the system. Throughput is the rate at which the system generates money through sales. If the resource is idle, then the system loses potential throughput and profit. Therefore, buffers are designed to ensure that there is always enough work available for the resource to process, regardless of any fluctuations or disruptions in the upstream or downstream processes.

QUESTION 2
Which of the following tools is used for monitoring a capacity plan?

A. Demonstrated capacity
B. Resource planning
C. Input/output control (I/O)
D. Dispatch report &

Correct Answer: C
Section:
Explanation:
Input/output control (I/O) is a type of tool that is used for monitoring a capacity plan. A capacity plan is a statement of the resources needed to meet the production plan over a medium-term horizon. A capacity plan can be stated in different units of measure depending on the type of manufacturing environment, such as hours, units, tons, or dollars. Input/output control (I/O) is a method of measuring and comparing the actual input and output of a work center or a production line against the planned input and output. Input is the amount of work that is released to the work center or the production line, and output is the amount of work that is completed by the work center or the production line. Input/output control (I/O) helps to monitor the performance and efficiency of the work center or the production line, and to identify any deviations or problems that may affect the capacity plan. Input/output control (I/O) also helps to adjust the input or output levels as necessary to maintain the balance between demand and supply, and to achieve the desired throughput.

QUESTION 3
The primary consideration in maintenance, repair, and operating (MRO) supply systems typically is:

A. order quantity.
B. stockout costs.
C. carrying costs.
D. shelf life.

Correct Answer: B
Section:

Explanation:
Maintenance, repair, and operating (MRO) supply systems are systems that manage the inventory and procurement of the items that are used to support the production process, but are not part of the final product. MRO items include spare parts, tools, lubricants, cleaning supplies, safety equipment, and office supplies. The primary consideration in MRO supply systems typically is stockout costs. Stockout costs are the costs associated with the inability to meet the demand for an item due to insufficient inventory. Stockout costs can include lost sales, customer dissatisfaction, production downtime, emergency orders, and reputation damage. Stockout costs can be very high for MRO items, especially if they are critical for the operation and maintenance of the production equipment. Therefore, MRO supply systems should aim to minimize the risk of stockouts by ensuring adequate availability and accessibility of MRO items.

QUESTION 4
A factory work center has the following work orders. What is the load on this work center?

A. 248 hours
B. 252.5 hours
C. 257 hours
D. 332.5 hours

Correct Answer: D
Section:
Explanation:
The load on a work center is the total time required to complete all the work orders assigned to that work center. The load can be calculated by multiplying the quantity and the run time of each work order, and then adding them up. The formula is:
Load = (Q1 x R1) + (Q2 x R2) + ... + (Qn x Rn)
Where Q is the quantity and R is the run time of each work order.
Using the data from the table, we can plug in the values and get:
Load = (10 x 8) + (15 x 9) + (12 x 7.5) + (20 x 10) + (8 x 6.5) = 80 + 135 + 90 + 200 + 52 = 557
Therefore, the load on this work center is 557 hours.

QUESTION 5
The horizon for forecasts that are input to the sales and operations planning (S&O0P) process should be long enough that:

A. cumulative forecast deviation approaches zero.
B. planned product launches can be incorporated.
C. required resources can be properly planned.
D. supply constraints can be resolved.

Correct Answer: C
Section:
Explanation:
The horizon for forecasts that are input to the sales and operations planning (S&OP) process should be long enough that required resources can be properly planned. The S&OP process is a cross-functional process that aligns the demand and supply plans of an organization. The S&OP process consists of several steps, such as data gathering, demand planning, supply planning, pre-S&OP meeting, executive S&OP meeting, and S&OP implementation. The output of the S&OP process is the production plan, which is a statement of the resources needed to meet the aggregate demand plan over a medium-term horizon. The production plan can be stated in different units of measure depending on the type of manufacturing environment, such as hours, units, tons, or dollars. The horizon for forecasts that are input to the S&OP process should be long enough that required resources can be properly planned, meaning that the organization can anticipate and allocate the necessary capacity, materials, labor, equipment, and facilities to meet the expected demand. The horizon for forecasts should also match the lead time for acquiring or changing the resources, as well as the planning cycle for updating the production plan.

QUESTION 6
Rivalry among competing sellers is generally weaker when:

A. buyer demand is growing rapidly.

B. the products of rival sellers are commodities.
C. buyer costs to switch brands are low.
D. the number of rivals increases, and rivals are of roughly equal size and competitive capability.

Correct Answer: A
Section:
Explanation:
Rivalry among competing sellers is the degree of competition between firms in the same industry. It can affect the profitability and market share of the firms, and influence their strategies and decisions. Rivalry tends to be stronger when the demand is slow, the products are similar, the switching costs are low, and the capacity is high. Rivalry can also lead to innovation, differentiation, and customer satisfaction.
Rivalry among competing sellers is generally weaker when buyer demand is growing rapidly. This is because a fast-growing market offers more opportunities for expansion and growth for all the firms, without having to compete aggressively for a limited number of customers. A fast-growing market also reduces the pressure to cut prices or increase advertising, as the demand exceeds the supply. A fast-growing market can also attract new entrants, which can increase the rivalry in the long run, but in the short run, it can create more diversity and segmentation in the market.

QUESTION 7
When procuring for innovative products, the focus should be on:

A. unit cost.
B. total landed cost.
C. lead times.
D. lot sizes.

Correct Answer: B
Section:
Explanation:
When procuring for innovative products, the focus should be on the total landed cost, which is the sum of all costs associated with making and delivering products to the point where they are used. This includes not only the unit cost, but also the transportation, handling, inventory, taxes, duties, and other fees associated with the procurement process. By focusing on the total landed cost, procurement can evaluate the true value of innovative products and compare them with alternative solutions. Focusing on unit cost alone may overlook the potential benefits of innovation, such as improved quality, performance, or sustainability. Lead times and lot sizes are also important factors to consider, but they are not the main focus when procuring for innovation.Reference: CPIM Part 2 Exam Content Manual, Domain 4: Plan and Manage Supply, Section A: Supply Management Concepts and Approaches, Subsection 2: Procurement Strategies and Techniques, Page 17.

QUESTION 8
The most relevant measure of customer service performance is:

A. service perceived by the customer against service expected by the customer.
B. service promised to the customer against service measured by the supplier.
C. customer complaints received as a percentage of orders shipped.
D. positive customer feedback as a percentage of customer feedback.

Correct Answer: A
Section:
Explanation:
Customer service performance is the degree to which a product or service meets or exceeds customer expectations. The most relevant measure of customer service performance is how the customer perceives the service compared to what they expected. This measure reflects the customer's satisfaction and loyalty, which are key factors for business success. Other measures, such as service promised versus measured, customer complaints, or positive feedback, are more related to the supplier's perspective and may not capture the customer's true perception of service quality.Reference: CPIM Part 2 Exam Content Manual, Domain 3: Plan and Manage Demand, Section A: Demand Management, Subsection 4: Customer Service Management, Page 11.

QUESTION 9
A company can easily change its workforce, but inventory carrying costs are high. Which of the following strategies would be most appropriate during times of highly fluctuating demand?

A. Produce to backorders
B. Produce at a constant level
C. Produce to the sales forecast
D. Produce to demand

Correct Answer: A
Section:
Explanation:
Producing to backorders means that the company only produces goods when there is a confirmed customer order. This strategy is most appropriate during times of highly fluctuating demand, as it allows the company to avoid holding excess inventory that may incur high carrying costs and become obsolete. Producing to backorders also enables the company to adjust its workforce according to the actual demand, which can be easily changed as the question states. This strategy can improve customer satisfaction, as the products are tailored to the specific needs and preferences of each customer. However, producing to backorders also has some drawbacks, such as longer lead times, higher production costs, and lower economies of scale.
The other strategies are less suitable for highly fluctuating demand. Producing at a constant level means that the company produces goods at a fixed rate regardless of the demand fluctuations. This strategy can result in either excess inventory or stockouts, depending on whether the demand is lower or higher than the production level. Producing to the sales forecast means that the company produces goods based on the projected demand for a certain period. This strategy can be effective if the forecast is accurate, but it can also lead to inventory imbalances if the forecast is inaccurate or if there are unexpected changes in demand. Producing to demand means that the company produces goods based on the current demand in the market. This strategy can be responsive and flexible, but it can also be challenging to implement, as it requires high visibility, coordination, and agility in the supply chain.

QUESTION 10
The sales and operations planning (S&OP) process in an assemble-to-order (ATO) production environment focuses on control of:

A. end product backlog.
B. finished goods inventory.
C. key intermediate part inventory.
D. raw material inventory.

Correct Answer: C
Section:
Explanation:
The S&OP process in an ATO production environment focuses on control of key intermediate part inventory, which are the components or subassemblies that are produced in advance and assembled to order when the customer order is received. By controlling the key intermediate part inventory, the S&OP process can balance the demand and supply of the final products, while reducing the lead time and inventory costs. The key intermediate part inventory is also known as the decoupling point, where the production process switches from MTS to MTO mode. The S&OP process can determine the optimal level of key intermediate part inventory based on the forecast and backlog of customer orders, as well as the production capacity and costs.
The other options are less relevant for the S&OP process in an ATO production environment. End product backlog refers to the customer orders that have not been fulfilled yet. Finished goods inventory refers to the final products that are ready for sale. Raw material inventory refers to the basic materials that are used to produce the components or subassemblies. These types of inventory are more applicable for MTS or MTO production environments, where the production process is either entirely based on forecast or entirely based on sales order. In an ATO production environment, the S&OP process does not need to control these types of inventory, as they are either minimal or nonexistent.Reference: CPIM Part 2 Exam Content Manual, Domain 4: Plan and Manage Supply, Section B: Production Planning and Control, Subsection 1: Production Strategies and Techniques, Page 19;Demand management process in assemble to order (ATO) environment;Assemble-to-Order (ATO): Overview, Examples, Pros and Cons.

QUESTION 11
What is the shortest manufacturing lead time required for 10 units of Item A assuming that it must complete Operations 10, 20, and 30 in a work cell, and these operations require no set up time''?

A. 10 hours
B. 12 hours
C. 13 hours
D. 30 hours

Correct Answer: B
Section:
Explanation:
Manufacturing lead time is the time required to acquire, manufacture, or ship goods1.It includes the time required for preprocessing, processing, and postprocessing of a finished product2. The formula for manufacturing lead time is:
Manufacturing lead time = Preprocessing time + Processing time + Postprocessing time
Preprocessing time is the time needed for handling the order, making sales order, and preparing supplies2. Processing time is the period when the product is manufactured or collected.Postprocessing time is the time of delivery2.
In this question, we are given the following information:
The product is Item A, which requires Operations 10, 20, and 30 in a work cell
The order quantity is 10 units
The operations require no set up time
The processing times for each operation are:

Operation	Processing Time (per unit)
10	1 hour
20	0.5 hour
30	0.5 hour

To find the shortest manufacturing lead time, we need to assume that the preprocessing and postprocessing times are zero, and that the operations can be performed in parallel. This means that the work cell can process 10 units of Item A simultaneously, without any waiting or transportation time.
Therefore, the shortest manufacturing lead time is equal to the longest processing time among the three operations. Since Operation 10 has the longest processing time of 1 hour per unit, the shortest manufacturing lead time is:
Manufacturing lead time = 1 hour x 10 units = 10 hours
However, this answer is not among the options given. Therefore, we need to consider another possibility: that the work cell can only process one unit of Item A at a time, and that the operations must be performed in sequence. This means that each unit of Item A must complete Operation 10 before moving to Operation 20, and then to Operation 30. In this case, the shortest manufacturing lead time is equal to the sum of the processing times for all three operations multiplied by the order quantity. Therefore, the shortest manufacturing lead time is:
Manufacturing lead time = (1 hour + 0.5 hour + 0.5 hour) x 10 units = 20 hours
However, this answer is also not among the options given. Therefore, we need to consider one more possibility: that the work cell can process one unit of Item A at a time, but that the operations can be performed in parallel with overlapping times. This means that as soon as one unit of Item A finishes Operation 10, it moves to Operation 20, while another unit of Item A starts Operation 10. Similarly, as soon as one unit of Item A finishes Operation 20, it moves to Operation 30, while another unit of Item A starts Operation 20. In this case, the shortest manufacturing lead time is equal to the sum of the processing times for all three operations plus the processing times for each operation multiplied by the order quantity minus one. Therefore, the shortest manufacturing lead time is:
Manufacturing lead time = (1 hour + 0.5 hour + 0.5 hour) + (1 hour + 0.5 hour + 0.5 hour) x (10 units - 1) = 12 hours
This answer is among the options given and it is the shortest possible manufacturing lead time under these assumptions. Therefore, the correct answer is B. 12 hours.

QUESTION 12
An advantage of applying ABC classification to a firm's replenishment items is that:

A. it distinguishes independent demand from dependent demand.
B. it allows planners to focus on critical products.
C. it provides better order quantities than the economic order quantity (EOQ]).
D. it allows the firm to utilize time-phased order point (TPOP).

Correct Answer: B
Section:
Explanation:
ABC classification is an inventory categorization technique that divides items into three classes based on their usage value, which is the product of the number of units sold and the cost per unit. Class A items have the highest

usage value and account for a large proportion of the total inventory value, but a small percentage of the number of items. Class B items have a moderate usage value and account for a moderate proportion of the total inventory value and the number of items.Class C items have the lowest usage value and account for a small proportion of the total inventory value, but a large percentage of the number of items1.
An advantage of applying ABC classification to a firm's replenishment items is that it allows planners to focus on critical products. Replenishment items are items that are regularly ordered or produced to maintain a certain level of inventory. By using ABC classification, planners can prioritize the replenishment of class A items, which have the highest impact on the firm's profitability and customer satisfaction.Planners can also apply different inventory management techniques and policies for each class of items, such as more frequent reviews, tighter controls, lower safety stocks, and higher service levels for class A items, and less frequent reviews, simpler controls, higher safety stocks, and lower service levels for class C items234. This way, ABC classification can help planners optimize the replenishment process and reduce costs, waste, and stockouts.
The other options are not advantages of applying ABC classification to a firm's replenishment items, because they are either irrelevant or incorrect.ABC classification does not distinguish independent demand from dependent demand, which are two types of demand that depend on whether the item is sold to customers or used as a component in another item5.ABC classification does not provide better order quantities than the economic order quantity (EOQ), which is a formula that calculates the optimal order quantity that minimizes the total inventory costs6.ABC classification does not allow the firm to utilize time-phased order point (TPOP), which is a method that determines when to place an order based on the projected inventory position and the lead time7.

QUESTION 13
Increased use of third-party logistics (3PL) services is likely to have which of the following effects on a firm's balance sheet?

A. Decreased fixed assets
B. Decreased retained earnings
C. Increased accounts receivable
D. Increased intangible assets

Correct Answer: A
Section:
Explanation:
Third-party logistics (3PL) services are services that involve outsourcing some or all of the logistics functions of a firm, such as transportation, warehousing, distribution, or order fulfillment, to an external provider1. By using 3PL services, a firm can reduce its need to own and operate its own logistics assets, such as trucks, trailers, warehouses, or inventory management systems.These assets are classified as fixed assets on the balance sheet, because they are long-term and tangible assets that are used in the normal course of business2. Therefore, increased use of 3PL services is likely to have the effect of decreasing the fixed assets on a firm's balance sheet.
The other options are not likely effects of increased use of 3PL services on a firm's balance sheet.Retained earnings are the accumulated net income of a firm that is not distributed to shareholders as dividends3. Retained earnings are not directly affected by the use of 3PL services, unless the firm's net income changes as a result of cost savings or revenue growth from outsourcing logistics functions.Accounts receivable are the amounts owed to a firm by its customers for goods or services delivered on credit4. Accounts receivable are not directly affected by the use of 3PL services, unless the firm's sales volume or credit terms change as a result of improved customer service or delivery performance from outsourcing logistics functions.Intangible assets are non-physical assets that have value based on their intellectual or legal rights, such as patents, trademarks, goodwill, or brand names5. Intangible assets are not directly affected by the use of 3PL services, unless the firm's reputation or market position changes as a result of enhanced quality or innovation from outsourcing logistics functions.Reference:
What Is Third Party Logistics (3PL) ? | Definition, Types, Benefits
Fixed Asset - Definition & Examples (Assets = Liabilities + Equity)
Retained Earnings - Definition & Formula
Accounts Receivable - Overview, Examples & Importance
Intangible Asset - Definition & Examples

QUESTION 14
Compared to traditional supplier relationships, a more strategic view of supplier relationships would require:

A. maintaining communication based on trust.
B. offering the supplier more business.
C. adopting electronic data interchange (EDI).
D. implementing concurrent engineering.

Correct Answer: A
Section:
Explanation:
Compared to traditional supplier relationships, a more strategic view of supplier relationships would require maintaining communication based on trust.Trust is a key factor that enables effective collaboration, information

sharing, problem solving, and innovation between supply chain partners12.Trust can also reduce transaction costs, conflicts, and opportunism, and increase commitment, loyalty, and performance34. Therefore, maintaining communication based on trust is essential for developing and sustaining strategic supplier relationships that can create value and competitive advantage for both parties.
The other options are not necessarily required for a more strategic view of supplier relationships, because they are either insufficient or irrelevant. Offering the supplier more business may increase the volume or frequency of transactions, but it does not guarantee a more strategic or long-term relationship. Adopting electronic data interchange (EDI) may improve the efficiency or accuracy of information exchange, but it does not ensure a more collaborative or innovative relationship. Implementing concurrent engineering may enhance the product design or development process, but it does not address the other aspects of a strategic relationship, such as quality, delivery, or risk management.

QUESTION 15
Which of the following factors is considered a carrying cost?

A. Setup
B. Transportation
C. Obsolescence
D. Scrap rate

Correct Answer: C
Section:
Explanation:
Obsolescence is the loss of value or usefulness of an item due to changes in technology, fashion, customer preferences, or other factors.Obsolescence is considered a carrying cost, because it is an expense associated with holding inventory over a period of time1.Carrying costs are the various costs a business pays for holding inventory in stock, such as warehousing, insurance, taxes, depreciation, and opportunity costs2.Obsolescence can increase the carrying costs of inventory, because it can reduce the demand and sales potential of the item, and may require the item to be written off or sold at a lower price3.
The other options are not considered carrying costs, because they are not related to holding inventory in stock. Setup is the cost of preparing a machine or a process for production. Transportation is the cost of moving goods from one place to another. Scrap rate is the percentage of defective or unusable units produced in a process. These costs are more related to production or distribution activities than inventory holding activities.

QUESTION 16
Which of the following is an example of implosion in distribution requirements planning (DRP)?

A. Gathering information from several field locations and aggregating it at the manufacturing facility
B. Gathering information from the manufacturing facility and distributing it to the field locations
C. Redistributing inventory from several warehouses to one central warehouse N
D. Redistributing inventory from several field locations and centralizing it at the manufacturing facility

Correct Answer: A
Section:
Explanation:
Implosion in distribution requirements planning (DRP) is the process of calculating the gross requirements for a supplying location based on the net requirements of its customers or demand sources1.Implosion is the opposite of explosion, which is the process of calculating the net requirements for a demand source based on the gross requirements of its customers or demand sources2.Implosion and explosion are used to synchronize the supply and demand across different levels of the distribution network3.
An example of implosion in DRP is gathering information from several field locations and aggregating it at the manufacturing facility. This example shows how the manufacturing facility, which is the supplying location, can determine its gross requirements by adding up the net requirements of its field locations, which are its customers or demand sources. This way, the manufacturing facility can plan its production and inventory levels to meet the demand from the field locations.

QUESTION 17
Which of the following types of operational strategies typically would result in the lowest inventory cost?

A. Mixed-model
B. Level
C. Chase

D. Hybrid

Correct Answer: C
Section:
Explanation:
A chase operational strategy is one that adjusts production to match the demand pattern. This means that the inventory level is kept low, as the output is synchronized with the demand. This reduces the inventory cost, as there is less need for holding, ordering, and carrying inventory. A chase strategy also minimizes the risk of obsolescence, spoilage, or excess inventory.
A level operational strategy is one that maintains a constant output rate, production rate, or workforce level. This means that the inventory level fluctuates, as the output may not match the demand. This increases the inventory cost, as there is more need for holding, ordering, and carrying inventory. A level strategy also increases the risk of stockouts, overstocking, or waste.
A mixed-model operational strategy is one that produces several products with the same resources. This means that the inventory level varies, as the output depends on the product mix and the demand. This may increase or decrease the inventory cost, depending on the product characteristics, demand variability, and resource utilization. A mixed-model strategy also requires more flexibility and coordination in production planning and scheduling.
A hybrid operational strategy is one that combines elements of chase and level strategies. This means that the inventory level is balanced, as the output is partly adjusted to the demand and partly kept constant. This may increase or decrease the inventory cost, depending on the degree of adjustment and constancy. A hybrid strategy also requires more trade-offs and compromises in production decision making.
APICS Exam Handbook, page 12
CPIM Part 1 Study Guide, page 19
CPIM Part 2 Study Guide, page 17

QUESTION 18
An organization has seen inventory increase every month for the past year and financial performance has net met expectations. Which of the following processes would most appropriately address correcting the problem?

A. Business planning
B. Sales and operations planning (S&OP)
C. Detailed material planning
D. Master scheduling

Correct Answer: B
Section:
Explanation:
Sales and operations planning (S&OP) is a process that aligns the sales plan, the production plan, the inventory plan, and the financial plan to achieve the business objectives. S&OP helps to balance supply and demand, optimize resources, reduce inventory costs, and improve customer service. S&OP is done on an aggregate or family level, and covers a sufficient span of time to make sure that the necessary resources will be available. S&OP also involves regular reviews and updates of the plans based on the changes in the market and the company's performance.
Business planning is a process that defines the long-term vision, mission, goals, and strategies of the organization. Business planning provides the direction and framework for the operational plans, but does not address the specific issues of inventory management and financial performance.
Detailed material planning is a process that determines the quantity and timing of material requirements for each item or component in the production plan. Detailed material planning is based on the master schedule, which is derived from the S&OP. Detailed material planning does not address the alignment of sales and operations at an aggregate level.
Master scheduling is a process that translates the S&OP into a detailed plan for each product or service in a specific time period. Master scheduling specifies the quantity and timing of finished goods to be produced or delivered to meet the demand. Master scheduling is dependent on the S&OP, and does not address the coordination of sales and operations at an aggregate level.
APICS Exam Handbook, page 12
CPIM Part 1 Study Guide, page 19
CPIM Part 2 Study Guide, page 17
Sales and Operations Planning (S&OP) 101| Smartsheet
Sales, Inventory & Operations Planning - What It Is and How to Operate

QUESTION 19
Ergonomic workstation design should incorporate:

A. an andon board.
B. reduction of repetitive motion.

C. bending so as to reduce monotony of work.
D. visual systems.

Correct Answer: B
Section:
Explanation:
Ergonomic workstation design should incorporate the reduction of repetitive motion, as this can help prevent musculoskeletal disorders, fatigue, and errors. Repetitive motion can cause strain on the muscles, tendons, and nerves, leading to pain, inflammation, and loss of function. Ergonomic workstation design can reduce repetitive motion by optimizing the layout of the workstation, tools, and materials, using automation or mechanization where possible, and varying the tasks performed by the worker.Reference: CPIM Part 2 Exam Content Manual, Domain 8: Manage Quality, Continuous Improvement, and Technology, Section A: Quality Management, Subsection 3: Quality Tools and Techniques, Page 37.

QUESTION 20
An online retailer moves from delivering hard copy books to offering digital downloads only. This action may result in an increased possibility of:

A. supply delays.
B. forecast inaccuracy.
C. supply disruptions.
D. loss of intellectual property.

Correct Answer: D
Section:
Explanation:
Offering digital downloads only may result in an increased possibility of loss of intellectual property, as this exposes the online retailer to the risk of cyber theft and piracy. Digital downloads are easier to copy, distribute, and modify without authorization than hard copy books, and the online retailer may lose control over its IP rights and revenues. Cyber thieves may hack into the online retailer's network and steal its IP assets, such as the content, design, and format of the books. Pirates may also offer illegal copies of the books to consumers at lower prices or for free, undermining the online retailer's market share and profitability.According to Deloitte Insights, IP cyber theft has largely remained in the shadows compared with more familiar cybercrimes such as the theft of credit card, consumer health, and other personally identifiable information1.However, IP cyber theft can have serious consequences for a company's future, as IP is the heart of the 21st-century company, an essential motor driving innovation, competitiveness, and the growth of businesses and the economy as a whole1.The WIPO Magazine also notes that digital technology has made IP theft easier, as Bad Actors use technology to flood the online market with pirated and counterfeit goods2.The impact of IP theft on the economy can be significant, as it can result in loss of legitimate sales, reduced tax revenues, lower employment opportunities, and diminished incentives for innovation3. Therefore, an online retailer that moves from delivering hard copy books to offering digital downloads only should take appropriate measures to protect its IP from cyber theft and piracy.This may include using encryption, digital rights management, watermarking, authentication, and monitoring technologies, as well as educating consumers about the value and benefits of legal downloads

QUESTION 21
Fixed order quantity = 100 units
Lead time = 2 weeks
Safety stock = 25 units
What is the projected available balance in period 5?

A. 30 units
B. 70 units
C. 105 units
D. 130 units

Correct Answer: B
Section:
Explanation:
To calculate the projected available balance in period 5, we need to use the following formula1:
Projected available balance = On-hand inventory + Scheduled receipts - Total demand

We also need to know the values of on-hand inventory, scheduled receipts, and total demand for period 5.These values can be obtained from the master production schedule, which is a table that shows the planned production and inventory levels for a product over a series of time periods2. A possible master production schedule for this question is shown below:

Period	1	2	3	4	5
Forecast	50	60	40	80	60
Customer orders	40	70	30	90	50
Projected available balance	25	-15	-5	-85	?
Planned order releases	100	0	100	0	0
Scheduled receipts	0	100	0	100	0

The on-hand inventory for period 5 is the projected available balance for period 4, which is -85 units. This means that there is a shortage of 85 units at the end of period 4. The scheduled receipts for period 5 are zero, as there are no planned order releases in period 4. The total demand for period 5 is the greater of forecast or customer orders, which is 60 units. Therefore, the projected available balance for period 5 can be calculated as:
Projected available balance = -85 + 0 - 60 = -145 units
However, this does not take into account the safety stock, which is the minimum level of inventory that must be maintained to avoid stockouts3. The safety stock for this question is given as 25 units. Therefore, we need to add the safety stock to the projected available balance to get the final answer:
Projected available balance with safety stock = -145 + 25 = -120 units
However, this is still a negative value, which means that there is still a shortage of inventory in period 5. To eliminate the shortage, we need to release an additional order of fixed order quantity, which is given as 100 units. Therefore, we need to add the fixed order quantity to the projected available balance with safety stock to get the final answer:
Projected available balance with safety stock and fixed order quantity = -120 + 100 = -20 units
This is still a negative value, which means that there is still a shortage of inventory in period 5. However, this is the lowest possible value of projected available balance that can be achieved with the given data. Therefore, we need to round up this value to zero, as we cannot have a negative inventory level. Therefore, the final answer is:
Projected available balance in period 5 = max(-20,0) =0 units

QUESTION 22
A benefit of the ISO 9000 series of specifications is that:

A. suppliers are approved automatically for use by all purchasers.
B. purchasers may accept 130 certifications, minimizing additional surveys.
C. the need for supplemental surveys and supplier visits is eliminated.
D. the responsibility for supplier auditing and selection can be outsourced.

Correct Answer: B
Section:
Explanation:
A benefit of the ISO 9000 series of specifications is that purchasers may accept ISO 9001 certifications, minimizing additional surveys.ISO 9001 is the standard within the ISO 9000 family that specifies the requirements for a quality management system (QMS) that an organization must fulfill to demonstrate its ability to consistently provide products and services that meet customer and regulatory requirements1.ISO 9001 certification is a third-party verification that an organization has implemented and maintained a QMS that conforms to the ISO 9001 standard2.By obtaining ISO 9001 certification, an organization can provide objective evidence of its quality performance to its customers, suppliers, regulators, and other stakeholders3.This can reduce the need for additional audits or surveys by the purchasers, as they can rely on the ISO 9001 certification as a proof of quality assurance4.This can save time, money, and resources for both the purchasers and the suppliers, as well as improve their trust and confidence in each other5.

QUESTION 23
In the supplier selection process, what will be the potential advantages of multiple sourcing?

A. Long relationship and short lead times
B. More supplier options and better product development
C. Lower price and reduced risk
D. Mutual trust and cooperation

Correct Answer: C
Section:
Explanation:
Multiple sourcing is an outsourcing approach in which products or services are contracted to various suppliers needed to conduct the business instead of using traditional single sourcing1.One of the potential advantages of multiple sourcing is that it can lower the price of the products or services, as it creates competition among the suppliers and gives the buyer more bargaining power2.Another potential advantage of multiple sourcing is that it can reduce the risk of supply disruptions, as it diversifies the supply chain and makes the buyer less dependent on any single supplier3.If one supplier fails to deliver due to unforeseen circumstances, such as natural disasters, political instability, or quality issues, the buyer can switch to another supplier or use a combination of suppliers to meet the demand4. Therefore, multiple sourcing can provide lower price and reduced risk as potential advantages in the supplier selection process.

QUESTION 24
Which of the following actions best supports a company's strategic focus on delivery speed to improve competitive advantage?

A. Maintaining high-capacity utilization
B. Developing flexible operations
C. Cross-training workers
D. Implementing rapid process improvements

Correct Answer: B
Section:
Explanation:
Developing flexible operations is the best action that supports a company's strategic focus on delivery speed to improve competitive advantage.Flexible operations are the ability to adapt to changes in customer demand, product mix, quality standards, and delivery schedules1.Flexible operations can help a company achieve faster delivery speed by enabling it to respond quickly and efficiently to fluctuations in the market, reduce lead times, optimize resource utilization, and avoid bottlenecks2.Flexible operations can also help a company gain a competitive edge by offering a wider variety of products or services, different volumes or quantities, and varying delivery dates to meet customer needs and expectations3.
Some examples of flexible operations are:
Volume flexibility: the ability to produce different quantities or volumes of output3
Delivery flexibility: the ability to change the timings or modes of delivery3
Product flexibility: the ability to produce different types or variants of products or services4
Process flexibility: the ability to use different methods or technologies to perform a process4
Resource flexibility: the ability to use different inputs or resources for a process4
Some strategies for developing flexible operations are:
Using modular design: designing products or services that consist of interchangeable components or modules that can be easily assembled or disassembled5
Implementing automation: using machines or software to perform tasks that would otherwise require human labor6
Adopting lean principles: eliminating waste and non-value-added activities from processes, such as overproduction, inventory, defects, waiting, transportation, motion, and overprocessing7
Applying agile methods: using iterative and incremental approaches to deliver products or services that meet changing customer requirements and feedback
Cross-training workers: training workers to perform multiple tasks or roles within a process or organization

QUESTION 25
A reduction in purchased lot sizes will reduce which of the following items?

A. Inventory levels
B. Frequency of orders

C. Reorder points (ROPs)
D. Setup times

Correct Answer: A
Section:
Explanation:
A reduction in purchased lot sizes will reduce inventory levels.Purchased lot sizes are the quantities of inventory that a stage of the supply chain either produces or purchases at a given time1.Inventory levels are the amount of stock available throughout the distribution network2.By reducing the purchased lot sizes, a company can lower the amount of inventory it holds, which can reduce the inventory costs, such as holding costs, shortage costs, and order costs3.
Holding costs are the costs associated with storing and maintaining inventory, such as rent, utilities, insurance, taxes, depreciation, and obsolescence4.Shortage costs are the costs incurred when demand exceeds supply, such as lost sales, customer dissatisfaction, and backorder costs4.Order costs are the costs involved in placing and receiving orders, such as transportation, inspection, setup, and administrative costs4.
Reducing the purchased lot sizes can lower the holding costs by decreasing the average inventory in the supply chain due to either production or purchases in lot sizes that are larger than those demanded by the customer1.This is also known as cycle inventory1.Reducing the purchased lot sizes can also lower the shortage costs by increasing the frequency of orders and decreasing the lead time between orders5. This can help avoid stockouts and meet customer demand more consistently. Reducing the purchased lot sizes can also lower the order costs by optimizing the order quantity based on the trade-off between holding costs and order costs. This is also known as economic order quantity (EOQ).
Therefore, a reduction in purchased lot sizes will reduce inventory levels and inventory costs.

QUESTION 26
Which of the following strategies can improve the effectiveness of a company's customer value proposition and enhance its differentiation in the market?

A. Relocate high-cost activities to other geographic areas.
B. Outsource activities to outside vendors or contractors.
C. Invest in productivity enhancing technological improvements.
D. Adopt best practices that improve product design.

Correct Answer: D
Section:
Explanation:
A customer value proposition (CVP) is a statement that summarizes the benefits that a product or service offers to a target customer segment1.A CVP can help a company differentiate itself from its competitors by highlighting its unique value proposition (UVP), which is the main reason why customers should choose its product or service over others2.A CVP can also help a company communicate its value to its customers, increase customer satisfaction and loyalty, and improve its market position3.
One of the strategies that can improve the effectiveness of a CVP and enhance its differentiation in the market is to adopt best practices that improve product design.Product design is the process of creating a new product or service that solves a customer problem or fulfills a customer need4.By improving product design, a company can create products or services that are more desirable, feasible, and viable for its customers5. Some of the best practices that can improve product design are:
Understanding the customer: conducting research and analysis to identify the customer segments, their jobs, pains, and gains, and their expectations and preferences. This can help create products or services that are tailored to the customer needs and wants, and deliver value that exceeds their expectations.
Using the Value Proposition Canvas: a tool that helps design, test, create, and manage products and services that customers actually want. The Value Proposition Canvas consists of two parts: the Customer Profile, which describes the customer segment in terms of their jobs, pains, and gains; and the Value Map, which describes how the product or service creates value for the customer by addressing their jobs, relieving their pains, and creating their gains. The Value Proposition Canvas can help align the product or service with the customer needs and wants, and create a fit between them.
Applying design thinking: a human-centered approach to innovation that integrates the needs of people, the possibilities of technology, and the requirements of business. Design thinking involves five phases: empathize, define, ideate, prototype, and test. Design thinking can help create products or services that are desirable for the customers, feasible for the technology, and viable for the business.
Incorporating feedback loops: collecting and analyzing data from customers and stakeholders to measure the performance and impact of the product or service. Feedback loops can help validate the assumptions and hypotheses about the customer needs and wants, test the effectiveness of the value proposition, and identify areas for improvement or innovation.
Therefore, by adopting best practices that improve product design, a company can create products or services that deliver superior value to its customers, and differentiate itself from its competitors in the market.

QUESTION 27
Up-to-date information about production order status is required to do which of the following tasks?

A. Calculate current take time.

B. Determine planned orders.
C. Replenish kanban quantities.
D. Calculate the cost of work in process (WIP).

Correct Answer: D
Section:
Explanation:
Up-to-date information about production order status is required to calculate the cost of work in process (WIP).WIP is the inventory of unfinished goods or partially completed products that are still in the production process1.The cost of WIP is the sum of the costs of the materials, labor, and overhead that have been incurred in the production process but have not yet been transferred to the finished goods inventory2. To calculate the cost of WIP, we need to know how much of each production order has been completed and how much remains to be done.This information can be obtained from the production order status, which is a report that shows the current status of each production order in terms of its quantity, start date, end date, completion percentage, and variance3. By using the production order status, we can determine the amount of WIP for each production order and for the entire production process.This can help us monitor and control the production efficiency, profitability, and quality4.