

CPIM Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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Questions

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- 1. What are net requirements in an MRP system?**
 - A. The total gross requirements before scheduling**
 - B. The available inventory after demand and receipts are considered**
 - C. The projected available inventory over time**
 - D. The sum of planned order receipts and scheduled receipts**
- 2. If the opening inventory is 100 units, sales are 500 units, and the ending inventory is 200 units, how many units will manufacturing produce?**
 - A. 300 units**
 - B. 400 units**
 - C. 500 units**
 - D. 600 units**
- 3. What is the main purpose of lot control?**
 - A. To assign multiple batch numbers to one product**
 - B. To maintain lot integrity through tracking**
 - C. To reduce the cost of raw materials**
 - D. To simplify the manufacturing process**
- 4. What factors contribute to determining available time in a work center?**
 - A. Shift structure, overtime, and public holidays**
 - B. The total number of machines in operation**
 - C. The efficiency of the workforce**
 - D. Supplier delivery schedules**
- 5. As priority planning progresses through various levels of capacity validation, what observation is accurate?**
 - A. The duration of the planning horizon extends longer.**
 - B. Material requirements planning focuses on bottlenecks only at the component level.**
 - C. Master scheduling encompasses resource capacities at the end-item level.**
 - D. Sales and operations planning coordinates critical resources at the product family level.**

- 6. What does the sawtooth diagram illustrate in inventory management?**
- A. Seasonal demand trends**
 - B. Order point/order quantity inventory system**
 - C. Production scheduling efficiency**
 - D. Raw material consumption rates**
- 7. What is the primary purpose of using a moving average in forecasting?**
- A. To account for seasonal variations**
 - B. To smooth out short-term fluctuations**
 - C. To provide a sensitive historical analysis**
 - D. To forecast future market trends**
- 8. What is a bill of resources?**
- A. A summary of financial resources required for production**
 - B. A document detailing the quantity of resources needed for a project**
 - C. A listing of required capacity and key resources for manufacturing**
 - D. A record of inventory usage over time**
- 9. How are net requirements calculated?**
- A. Gross Requirements + Scheduled Receipts - Prior Projected Available**
 - B. Gross Requirements - Scheduled Receipts - Prior Projected Available**
 - C. Gross Requirements - Scheduled Receipts + Safety Stock**
 - D. Gross Requirements + Prior Available - Safety Stock**
- 10. Which of the following describes 'ways' in the context of transportation?**
- A. Paths that include various transportation modes**
 - B. Methods for determining shipment costs**
 - C. Routes monitored by government regulations**
 - D. Protocols for cargo handling**

Answers

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- 1. B**
- 2. D**
- 3. B**
- 4. A**
- 5. D**
- 6. B**
- 7. B**
- 8. C**
- 9. B**
- 10. A**

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Explanations

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1. What are net requirements in an MRP system?

- A. The total gross requirements before scheduling
- B. The available inventory after demand and receipts are considered**
- C. The projected available inventory over time
- D. The sum of planned order receipts and scheduled receipts

Net requirements in an MRP (Material Requirements Planning) system refer to the available inventory after accounting for demand and receipts. This concept is crucial within MRP because it helps in determining the actual inventory needed to fulfill production goals. In this context, net requirements are calculated by taking the total gross requirements (the total amount required for production) and subtracting any inventory already on hand as well as any planned receipts. By doing this calculation, companies can accurately identify how much additional inventory needs to be ordered, ensuring that production can continue without interruption. This approach allows for better inventory management, preventing excess stock and reducing carrying costs while ensuring that enough materials are available to meet production schedules. It's essential for effective planning and helps optimize supply chain operations. The other options represent different aspects of the MRP process but do not accurately describe net requirements. For instance, total gross requirements refer to the total material needed before considering existing inventory or receipts, which is a step prior to calculating net requirements. Similarly, projected available inventory is a forecast rather than a measure of net requirements, and the sum of planned order and scheduled receipts also does not align with the definition of net requirements as it does not take into account current inventory status.

2. If the opening inventory is 100 units, sales are 500 units, and the ending inventory is 200 units, how many units will manufacturing produce?

- A. 300 units
- B. 400 units
- C. 500 units
- D. 600 units**

To determine the number of units that manufacturing will produce, it's essential to understand the relationship between opening inventory, sales, ending inventory, and production. We can use the following formula to calculate production: **$\text{Production} = (\text{Ending Inventory} + \text{Sales}) - \text{Opening Inventory}$** . In this scenario, you have: - Opening Inventory = 100 units - Sales = 500 units - Ending Inventory = 200 units. Now, applying the values: **$\text{Production} = (200 + 500) - 100$** . First, add the ending inventory to sales: **$200 + 500 = 700$** . Next, subtract the opening inventory: **$700 - 100 = 600$ units**. This means that manufacturing must produce 600 units to meet the sales demand while ensuring that the ending inventory requirement is met. Therefore, the answer of 600 units reflects the calculations based on the inventory and sales data provided. This understanding is crucial for anyone preparing for the CPIM exam, as it focuses on the fundamental aspects of inventory management and production planning.

3. What is the main purpose of lot control?

- A. To assign multiple batch numbers to one product
- B. To maintain lot integrity through tracking**
- C. To reduce the cost of raw materials
- D. To simplify the manufacturing process

The main purpose of lot control is to maintain lot integrity through tracking. This involves keeping a detailed record of each batch of products, allowing for accurate monitoring and management of inventory as it moves through different stages of the supply chain. Lot control ensures that each product can be traced back to its source, which is crucial for quality control, regulatory compliance, and effective recall processes if defects or issues arise. By maintaining this integrity, organizations can guarantee that they meet safety standards, manage customer concerns efficiently, and maintain transparency in the supply chain. The other options, while they may touch on various aspects of manufacturing and inventory management, do not encapsulate the primary focus of lot control. Assigning multiple batch numbers could complicate tracking rather than streamline it, reducing costs of raw materials may not be directly related to lot control, and simplifying the manufacturing process doesn't align with the primary goal of maintaining traceability and accountability for each lot produced.

4. What factors contribute to determining available time in a work center?

- A. Shift structure, overtime, and public holidays**
- B. The total number of machines in operation
- C. The efficiency of the workforce
- D. Supplier delivery schedules

The correct choice identifies the various elements that influence the amount of time a work center is actually available to produce goods. Shift structure indicates how many hours per day and how many days per week the work center operates. This includes regular shifts as well as any potential changes due to special shifts or overtime. Overtime allows for additional hours beyond the standard workweek, which can increase available time for production. Public holidays are factors that typically reduce available working days, as they can lead to closures. While considering the other options, the total number of machines in operation is important for understanding capacity, it doesn't directly relate to the available time unless it's considered alongside the operational hours. The efficiency of the workforce indeed affects productivity but does not directly affect the measurement of available time. Supplier delivery schedules impact the workflow and the timing of materials arriving for production but are not factors in determining how much time is available for production at the work center itself. Thus, the combination of shift structure, overtime, and public holidays is crucial for quantifying available time effectively.

5. As priority planning progresses through various levels of capacity validation, what observation is accurate?
- A. The duration of the planning horizon extends longer.
 - B. Material requirements planning focuses on bottlenecks only at the component level.
 - C. Master scheduling encompasses resource capacities at the end-item level.
 - D. Sales and operations planning coordinates critical resources at the product family level.**

The observation that sales and operations planning coordinates critical resources at the product family level is accurate because this level of planning aims to align supply and demand by considering aggregates of products rather than focusing on individual items. Sales and operations planning (S&OP) integrates various functions such as marketing, production, and finance to ensure that an organization can meet market demand while managing its resource capabilities effectively. Analyzing resources at the product family level allows for a holistic view of production capacity, inventory management, and sales forecasting, leading to better decision-making that enhances efficiency and responsiveness to market needs. In contrast, the other choices either focus too narrowly (like bottlenecks at the component level) or misrepresent the levels involved in different planning processes (like master scheduling). Master scheduling indeed deals with end-item levels, while priority planning involves different levels of capacity validation, and the planning horizon does not necessarily extend longer through this process. Understanding how S&OP functions at a broader level helps clarify the interconnectedness of various elements within supply chain operations.

6. What does the sawtooth diagram illustrate in inventory management?
- A. Seasonal demand trends
 - B. Order point/order quantity inventory system**
 - C. Production scheduling efficiency
 - D. Raw material consumption rates

The sawtooth diagram is a graphical representation used in inventory management that effectively illustrates the relationship between inventory levels and reordering. It showcases how inventory levels fluctuate over time as stock is consumed and replenished. In this diagram, the horizontal axis typically represents time, while the vertical axis represents inventory levels. The "tooth" of the saw indicates the depletion of inventory, which occurs as products are utilized or sold. When inventory levels reach a predetermined reorder point, a new order is placed, and the inventory is replenished back to the maximum level, demonstrated by the upward spike in the diagram. This pattern continues, creating the characteristic sawtooth shape. This visualization is particularly beneficial for understanding the order point and order quantity system because it highlights the timing of inventory replenishment and helps managers determine optimal order quantities to maintain desired service levels, effectively balancing carrying costs and stock availability. The other options, while relevant to inventory management, do not specifically relate to the mechanics illustrated by the sawtooth diagram. For example, seasonal demand trends focus on forecasting demand variations over time, production scheduling efficiency pertains to optimizing manufacturing processes, and raw material consumption rates relate to the usage rates of inputs rather than the inventory system itself. Thus, the choice depicting the

7. What is the primary purpose of using a moving average in forecasting?

- A. To account for seasonal variations**
- B. To smooth out short-term fluctuations**
- C. To provide a sensitive historical analysis**
- D. To forecast future market trends**

The primary purpose of using a moving average in forecasting is to smooth out short-term fluctuations in data. This technique is particularly useful for analyzing time series data, as it helps to reduce noise and volatility, making it easier to see underlying trends. By averaging data points over a specified period, a moving average creates a trend line that reflects the central tendency of the dataset. This allows forecasters to make clearer assessments about the direction in which data is moving by filtering out irregularities and short-term variations that may not be relevant to long-term decision-making. This smoothing effect makes moving averages a valuable tool in various fields, including supply chain management and inventory control, where understanding long-term demands is crucial for effective planning. While other methods and tools may explicitly account for seasonal variations, provide historical insights, or forecast trends, moving averages primarily focus on facilitating a clearer understanding of the underlying patterns in the data by mitigating short-term noise.

8. What is a bill of resources?

- A. A summary of financial resources required for production**
- B. A document detailing the quantity of resources needed for a project**
- C. A listing of required capacity and key resources for manufacturing**
- D. A record of inventory usage over time**

A bill of resources is a document that outlines the specific resources required for manufacturing products, including both capacity and key resources. This definition emphasizes the critical role of understanding what is needed in terms of machinery, human labor, materials, and other essential components necessary to complete the production process efficiently. In manufacturing, having a comprehensive listing of these resources allows for better planning, scheduling, and utilization, which ultimately leads to increased productivity and reduced waste. It ensures that production managers are aware of what is available and what is needed to meet production goals. In contrast, a summary of financial resources might focus on the costs rather than the specifics of resource types necessary for production. A document detailing the quantity of resources for a project suggests a broader project management approach that may not relate specifically to manufacturing processes. Lastly, a record of inventory usage over time is concerned with tracking what has been used rather than specifying what's needed going forward. Thus, the option that correctly identifies a bill of resources is the one focusing on the listing of required capacity and key resources for manufacturing.

9. How are net requirements calculated?

- A. Gross Requirements + Scheduled Receipts - Prior Projected Available
- B. Gross Requirements - Scheduled Receipts - Prior Projected Available**
- C. Gross Requirements - Scheduled Receipts + Safety Stock
- D. Gross Requirements + Prior Available - Safety Stock

Net requirements are computed to determine the quantity of inventory that needs to be produced or ordered to meet demand after accounting for what is already on hand. The key formula for calculating net requirements involves starting with the gross requirements, which represent the total demand for a product. From this total, both scheduled receipts (inventory that is on order and will arrive shortly) and prior projected available inventory (the amount expected to be available at the start of the period) are subtracted. This method ensures that the calculation provides an accurate representation of what is actually needed (net requirements) after considering existing resources and incoming stock. Therefore, by using gross requirements and subtracting scheduled receipts and prior projected available, you derive the figure of net requirements, which is essential for effective inventory management and planning. Safety stock should not be included in the calculation of net requirements as it serves as a buffer against uncertainties in demand and supply, rather than as a component of current inventory levels. Hence, the formula properly reflects only the gross requirements adjusted by what is already accounted for through scheduled receipts and available stock, leading to this accurate net requirements figure.

10. Which of the following describes 'ways' in the context of transportation?

- A. Paths that include various transportation modes**
- B. Methods for determining shipment costs
- C. Routes monitored by government regulations
- D. Protocols for cargo handling

The correct answer highlights that 'ways' in the context of transportation refers to paths that include various transportation modes. This encompasses the different routes that goods can take from one location to another, allowing for multiple forms of transport such as road, rail, air, and water. Understanding these paths is crucial for logistics and supply chain management, as it enables organizations to optimize their transportation strategies and select the most efficient ways to move goods. Regarding the other options, methods for determining shipment costs, while important for budgeting and estimating expenses in transportation, do not define 'ways.' Similarly, routes monitored by government regulations highlight compliance and legal aspects rather than the fundamental concept of transportation paths. Lastly, protocols for cargo handling pertain to the procedures and standards employed during the physical management of shipments, which also differs from the broader concept of transportation routes.