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Supply Management Integration

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Topic Break Down

Topic	No. of Questions
Topic 1, Supply Management Integration	67
Topic 2, Logistics and Materials Management	102
Topic 3, Project Management	14
Topic 4, Quality Management	17
Total	200

QUESTION NO: 1

At the beginning of each year, a large firm's indirect procurement organization holds a brainstorming session. These sessions produce many great ideas and foster support among the procurement team. However, after a few years, support for the brainstorming sessions begins to diminish, and the projects discussed are pushed aside in order to deal with more pressing issues. In this situation, which of the following would be the BEST course of action to take?

- A. Discontinue the brainstorming sessions and urge employees to make improvements within their areas of responsibility as they see opportunities arise
- B. Ask other functional areas to suggest improvement projects, and dedicate resources to support these initiatives
- C. Create a center of excellence with select managers committed to implementing the ideas discussed in the brainstorming sessions
- D. Assign functional project managers to work on the brainstorming project

ANSWER: C

Explanation:

Create a center of excellence with select managers committed to implementing the ideas discussed in the brainstorming sessions is the best action because it converts a periodic idea-generation activity into a durable operating capability. The problem is not a lack of ideas or initial engagement; it is the absence of sustained ownership, prioritization, governance, and dedicated capacity to move selected ideas through evaluation and implementation despite day-to-day operational demands. A procurement center of excellence can establish a transparent intake and selection process, align projects to organizational strategy and expected value, assign accountable leaders, standardize improvement methods, and monitor benefits realization. This preserves the positive energy created by brainstorming while ensuring the organization invests effort in the most valuable initiatives. It also creates continuity from one annual session to the next, so promising projects are not abandoned when urgent work arises. This approach supports supply management's strategic role by building repeatable processes, developing specialized expertise, and delivering measurable improvements across indirect procurement. ISM identifies continuous improvement, strategic alignment, and organizational capability as core aspects of effective supply management practice; see [ISM Supply Management Capabilities](#). Structured governance and portfolio management similarly help organizations prioritize work and maintain accountability for intended outcomes, as described by the [Project Management Institute](#).

QUESTION NO: 2

A supply management organization has completed a cross-functional project that consolidated several indirect-spend categories. The project achieved its first-year savings target, but users report that some new ordering procedures are unclear and supplier performance data have not yet been reviewed.

Which of the following is the MOST important next action?

- A. Declare the project complete because the first-year savings target was achieved
- B. Conduct a post-implementation review with stakeholders and establish ongoing ownership of performance measures
- C. Begin a new sourcing project before reviewing the implemented process
- D. Renegotiate supplier prices before evaluating user adoption and service performance

ANSWER: B

Explanation:

Conduct a post-implementation review with stakeholders and establish ongoing ownership of performance measures is the best next action. Achieving the initial savings target does not demonstrate that the new process will remain effective. The organization should review user adoption, process issues, supplier performance, realized savings, and any unintended service or compliance effects, then assign responsibility for corrective actions and continuing governance.

Declaring the project complete would leave unresolved adoption and performance risks. Starting a new sourcing project does not address problems in the implemented process. Renegotiating price immediately focuses only on savings and overlooks whether the integrated operating model is functioning as intended.

QUESTION NO: 3

A manufacturer is preparing to implement an engineering change to a component used in a high-volume product. The supplier has already purchased material and begun production to the current revision. Engineering wants the new revision used as soon as possible, while operations wants to avoid disrupting production.

Which of the following is the BEST action for supply management to take?

- A. Require the supplier to begin producing the new revision immediately
- B. Establish a formal change-control plan with an effective date and disposition for existing inventory
- C. Allow the supplier to determine when it can convert to the new revision
- D. Cancel all open purchase orders for the current component revision

ANSWER: B

Explanation:

Establish a formal change-control plan with an effective date and disposition for existing inventory is the best action. The organization must coordinate engineering, operations, quality, and the supplier to determine when the new revision becomes effective and how materials, work in process, and finished goods to the prior revision will be used, reworked, returned, or scrapped.

Implementing the new revision immediately could create avoidable obsolescence or interrupt production. Delaying the change without a defined plan could create quality, configuration-control, or customer-compliance risks. A controlled transition protects supply continuity while ensuring that only approved product configurations are used after the agreed implementation point.

QUESTION NO: 4

A company is implementing a new sales and operations planning process. Sales is forecasting a substantial increase in demand for one product family, while operations reports that capacity will be constrained for the next two quarters. Finance has not yet evaluated the working-capital effect of building inventory in advance.

Which of the following is the MOST appropriate action for the supply manager to take?

- A. Require sales to revise the forecast to match current production capacity
- B. Facilitate a cross-functional evaluation of demand, capacity, inventory, and financial alternatives
- C. Build inventory immediately to protect customer-service levels
- D. Ask finance to establish a lower inventory budget for the product family

ANSWER: B

Explanation:

Facilitating a cross-functional evaluation of demand, capacity, inventory, and financial alternatives is the most appropriate action because the reported issue is an integrated business-planning decision. Sales, operations, finance, and supply management must reconcile the demand plan with feasible supply options and the financial consequences of each option.

Supply management can help compare alternatives such as building inventory before the constraint, securing supplemental capacity, changing the demand plan, or accepting constrained customer service. Committing to inventory before this review

could create unnecessary working-capital exposure, while requiring sales to reduce its forecast without analysis could forgo profitable demand.

QUESTION NO: 5

There are 10,000 units in stock for the beginning of January, and maximum inventory holding is 19,000 units. Sales are recorded at the end of the month.

Procurement receives a communication from one of its retailers that it is planning a promotional event in July. The retailer forecasts that it will require an additional 20,000 units. By how much should the level production strategy increase its monthly output of units in order to meet the requirements of the retailer and minimize overall inventory levels?

- A. 3,000
- B. 2,000
- C. 1,429
- D. 2,572
- E. Cannot be determined from the information provided.

ANSWER: E

Explanation:

Cannot be determined from the information provided is correct because a level-production increase requires a defined planning horizon and the expected baseline monthly demand or production plan. The stated opening inventory and maximum holding limit establish that only 9,000 additional units can be carried above the January opening balance at any one time. They do not establish how many months are available to build inventory for the July promotion, how normal demand will draw down inventory before July, or whether July production can be used before the end-of-month promotional sale is recorded. Each of those facts directly affects the monthly increase needed to supply the additional 20,000 units while respecting the inventory limit. For example, spreading 20,000 units evenly across a specified number of production periods produces a different result for every possible horizon, and an inventory-constrained plan must also account for normal monthly consumption. Sound supply-management planning therefore requires a time-phased demand forecast, inventory-projection data, and production-capacity assumptions before calculating a level output adjustment. This is consistent with ISM's emphasis on using planning and demand information to align supply decisions with organizational requirements; see [ISM Standards](#) and the [ISM supply-management planning resources](#).

QUESTION NO: 6

Which of the following is the BEST reason to use Monte Carlo simulations to improve a forecast?

- A. To create a forecast that is accurate but has a wider distribution of potential outcomes
- B. To provide a single correct forecast that removes uncertainty
- C. To increase confidence in the forecast by reducing uncertainty
- D. To simulate potential outcomes and accept the resulting forecast without question
- E. To model uncertainty in forecast inputs and generate a probability distribution of potential outcomes

ANSWER: E

Explanation:

To model uncertainty in forecast inputs and generate a probability distribution of potential outcomes is the best reason to use Monte Carlo simulation. Supply-management forecasts rely on uncertain variables such as demand, lead times, supplier capacity, prices, exchange rates, and disruption risks. Rather than treating every input as one fixed number, a Monte Carlo model assigns plausible probability distributions to those inputs and repeatedly samples them across many trials. The

resulting output shows the range of possible forecast results, their likelihood, and risk measures such as percentiles or the probability of exceeding a threshold. This gives decision-makers a more useful basis for inventory, sourcing, capacity, and contingency decisions than a single-point forecast alone. Importantly, the technique does not eliminate uncertainty; it makes uncertainty explicit and measurable so that forecast assumptions and risk tolerance can be evaluated appropriately. The U.S. National Institute of Standards and Technology describes Monte Carlo methods as propagating input probability distributions through a model to obtain the distribution of an output quantity. This application is also consistent with the general simulation approach described by the U.S. Department of Energy. See [NIST's Guide to the Expression of Uncertainty in Measurement](#) and [U.S. Department of Energy analysis methods](#).

QUESTION NO: 7

Which of the following describes a market structure where there are few sellers and many buyers and where price is controlled by either an industry leader or a cartel?

- A. Monopsony
- B. Perfect competition
- C. Monopoly
- D. Oligopoly

ANSWER: D

Explanation:

Oligopoly is the correct market structure because it consists of a small number of sellers serving a large number of buyers. The limited number of competing firms means that each seller's pricing, output, capacity, and other strategic decisions can materially affect the others. Consequently, firms in an oligopoly are mutually interdependent and commonly monitor a leading firm's actions when setting their own prices. This is often described as price leadership. In some circumstances, firms may coordinate or collude through a cartel to influence prices or output, although explicit cartel conduct can violate competition laws. For supply management professionals, recognizing an oligopolistic supply market is important because supplier concentration can reduce buyer leverage, increase exposure to coordinated price changes, and make supplier-market intelligence and risk-management planning especially valuable. The U.S. Department of Justice describes cartels as agreements among competitors to fix prices, rig bids, or allocate markets, all conduct associated with the market power and coordination risks that can arise among a small group of suppliers. A concise description of oligopoly and firms' strategic interdependence is also available from [Encyclopaedia Britannica](#). For cartel enforcement context, see the [U.S. Department of Justice Antitrust Division](#).

QUESTION NO: 8

An organization 's capital expenditure policies are MOST closely aligned with which of the following types of assets?

- A. Deferred
- B. Intangible
- C. Current
- D. Fixed

ANSWER: D

Explanation:

Fixed is correct because capital expenditure policies govern significant investments that provide benefits over multiple accounting periods, such as production equipment, facilities, machinery, vehicles, and technology infrastructure. These expenditures are recorded as long-term assets rather than being treated wholly as expenses in the period of purchase. The organization then allocates the asset's cost across its useful life, generally through depreciation, while maintaining controls for authorization, budgeting, acquisition, capitalization thresholds, asset records, and disposal.

In supply management, capital-expenditure decisions commonly involve cross-functional planning with finance, operations, engineering, and leadership because the purchase may commit substantial funds and affect capacity, operating cost, risk, and long-term organizational strategy. A sound capital policy therefore establishes the approval and governance process for acquiring and managing fixed assets throughout their life cycle. The Financial Accounting Standards Board describes property, plant, and equipment as long-lived tangible assets used in operations, a category that illustrates the typical focus of capital spending: [FASB glossary: Property, Plant, and Equipment](#). The U.S. Internal Revenue Service likewise distinguishes capital expenditures from currently deductible expenses and addresses recovery of capitalized asset costs over time: [IRS Publication 946, How To Depreciate Property](#).

QUESTION NO: 9

A company ' s average inventory value has remained relatively constant, while its cost of goods sold has increased. Which of the following will also likely show an increase for this firm?

- A. Stock level
- B. Cycle time
- C. Turnover
- D. Variance

ANSWER: C

Explanation:

Turnover will likely increase because inventory turnover is calculated by dividing cost of goods sold by average inventory value. When average inventory remains relatively unchanged, the denominator of that calculation is stable. An increase in cost of goods sold raises the numerator, thereby producing a higher turnover ratio. A higher inventory-turnover ratio means the organization is selling or using its inventory more frequently over the period. In supply management, this is an important efficiency measure because it connects the investment held in inventory with the flow of goods through operations and to customers. Monitoring this ratio helps supply managers assess whether inventory is being deployed productively and whether working capital tied up in stocked materials is supporting an appropriate level of business activity. The calculation and interpretation should use comparable accounting periods and consistently valued inventory figures, since changes in costing methods or seasonal demand can affect trend analysis. For further guidance on inventory-related financial measures, see the [AccountingCoach inventory turnover explanation](#) and the [Corporate Finance Institute inventory turnover ratio overview](#).

QUESTION NO: 10

A supply manager learns that parts used in manufacturing are arriving scratched and must be polished before use, thereby hampering production. Sending the parts back to the supplier is not an option, as they are needed to meet increased demand. Which of the following will be MOST helpful in resolving this problem?

- A. Acceptance/rejection history
- B. Process control
- C. Corrective action plan
- D. Supplier certification

ANSWER: C

Explanation:

Corrective action plan is the most helpful response because it provides a disciplined method for eliminating the cause of the scratched parts while maintaining the supply needed for production. The immediate containment action may include sorting, polishing, and using the usable parts so customer demand can be met. However, the corrective-action process goes further: the supply manager and supplier should define the nonconformity, gather evidence on where damage occurs, determine the

root cause, implement actions that remove that cause, and verify that the actions prevent recurrence. For example, the investigation may examine packaging design, protective materials, handling methods, transportation, storage, and inspection points. The plan should assign owners, due dates, measurable effectiveness criteria, and follow-up review. This approach addresses both continuity of supply and the underlying quality failure rather than treating polishing as a permanent workaround. ISO quality-management guidance emphasizes correcting nonconformities, determining their causes, and evaluating the effectiveness of actions taken. See the [ISO 9001 quality-management standard overview](#) and the [ASQ corrective action resource](#).

QUESTION NO: 11

The supply manager for a semiconductor company receives an emergency phone call from the firm's factory manager, who states that the manufacturing equipment is down and that a replacement part is needed as soon as possible. The supply manager checks the stock for this part but finds nothing. In this situation, the supply manager should do which of the following?

- A. Ask the factory manager to perform an equipment failure analysis in order to understand the root cause of the equipment failure
- B. Perform a cost analysis to examine if it is better to expedite the part or wait for the part's scheduled arrival date
- C. Contact the equipment supplier and ask it to coordinate an expedited delivery of the part as soon as possible
- D. Verify with the warehouse manager if there is an extra spare part in stock that was not correctly registered in the stock database system

ANSWER: C

Explanation:

“Contact the equipment supplier and ask it to coordinate an expedited delivery of the part as soon as possible” is the appropriate immediate response because the equipment is down, the required spare is unavailable internally, and every additional hour of outage can interrupt production, delay customer commitments, and increase operating losses. The supply manager's priority in this moment is recovery of supply and restoration of operations. Directly engaging the equipment supplier enables confirmation of part availability, identification of the fastest feasible transportation method, coordination of shipment timing, and escalation through the supplier's service or logistics contacts when needed. The manager should also communicate the urgency, required delivery location, equipment details, and any receiving constraints so the supplier can act without delay. This is consistent with supply-management practice emphasizing supplier relationship management, continuity of supply, and responsive coordination across internal operations and external supply partners. ISM's certification framework identifies supply management as an integrated business function involving supplier management and operational support; see [ISM Certified Professional in Supply Management](#). ISM also identifies supply chain and supplier-related capabilities as central professional competencies in its [Supply Management Capability Model](#). Once the immediate outage is addressed, the organization can separately investigate failure causes and improve spare-parts planning.

QUESTION NO: 12

A manufacturer has developed a supplier scorecard for a critical component supplier. The supplier consistently meets quality and delivery requirements, but the scorecard shows that invoice discrepancies have increased sharply during the last three months. The supplier asserts that its invoicing system has not changed.

Which of the following should the supply manager do FIRST?

- A. Review the purchase order, receipt, and invoice data to identify the source of the discrepancies
- B. Reduce the supplier's overall performance rating until invoices improve
- C. Reopen the component price negotiation with the supplier
- D. Transfer invoice approval responsibility from accounts payable to receiving

ANSWER: A

Explanation:

Review the purchase order, receipt, and invoice data to identify the source of the discrepancies is the best first action because the scorecard identifies a performance symptom, not its cause. The discrepancy may arise from purchase-order master data, price changes, receiving practices, unit-of-measure errors, freight terms, or supplier billing.

A fact-based review permits the organization to determine whether corrective action is needed internally, by the supplier, or jointly. Immediately reducing the supplier's score or reopening price negotiations would be premature because the supplier may not be responsible for the errors.

QUESTION NO: 13

XYZ, Inc. has experienced a significant increase in the number of expedited orders with a key supplier over the last few months. In this situation, XYZ should

- A. raise the reorder point level of the products purchased from the supplier, so that XYZ will not be affected by any stock shortages
- B. request that the supplier offer a discount on its products, as the expedited requests are a financial burden
- C. contact a freight forwarder and sign a priority shipping agreement, so that XYZ can secure the expedited services
- D. determine the reasons for the ongoing expedited orders, identify the root cause, and take corrective action

ANSWER: D**Explanation:**

The correct response is to determine the reasons for the ongoing expedited orders, identify the root cause, and take corrective action. A sustained rise in expedites is a process-performance signal rather than simply a transportation or inventory problem. Supply management should use data from requisitions, purchase orders, forecasts, inventory records, production schedules, supplier lead-time performance, and receiving records to establish where and why the normal replenishment process is failing. For example, the investigation may reveal demand-plan volatility, late internal approvals, inaccurate lead times or planning parameters, poor inventory-record accuracy, insufficient supplier capacity, or recurring quality issues. Corrective action can then be assigned to the responsible process owner and measured for effectiveness, reducing both the frequency of expedites and their associated premium freight, administrative effort, disruption, and supply risk. This approach supports continuous improvement by addressing variation and preventing recurrence instead of treating each urgent order as an isolated event. The Institute for Supply Management describes supply management as an integrated process that includes strategic sourcing, supplier relationship management, and supply continuity; these activities require performance analysis and improvement. See ISM's [Supply Management resources](#) and ASQ's guidance on [root cause analysis](#).

QUESTION NO: 14

When executing a new project, which of the following is MOST important to a smooth transition?

- A. Technological skills
- B. Collaboration
- C. Change management
- D. Continuous improvement

ANSWER: C**Explanation:**

Change management is most important to a smooth transition because a new project typically changes processes, responsibilities, systems, information flows, and stakeholder expectations. Even a technically sound solution can fail to deliver its intended value if affected people do not understand the change, lack the capability to adopt it, or are not

committed to using the new ways of working. Structured change management identifies impacted stakeholders, assesses readiness, develops clear communications, provides training and support, and reinforces adoption after implementation. These activities are particularly important in supply management integration, where a project may affect internal functions, suppliers, governance, and operational handoffs. Managing the people side of implementation helps maintain continuity of operations while embedding the new process or capability. The Project Management Institute recognizes organizational change management as a discipline that supports realization of project benefits and successful adoption of change. Similarly, Prosci describes change management as the application of a structured process and tools to help individuals transition successfully. See the [Project Management Institute's discussion of organizational change management](#) and [Prosci's ADKAR change-management model](#).

QUESTION NO: 15

A manufacturer is updating its production plans for the remainder of the year. The firm has already obtained revised needs information from its customers, as well as the finance and sales teams. Which of the following additional information would be MOST useful to the firm?

- A. Upcoming promotions from the marketing team
- B. Recent production issues from the quality team
- C. Product modifications from the design team
- D. Corporate goals from the management team

ANSWER: A

Explanation:

Upcoming promotions from the marketing team are the most useful additional input because promotions can materially alter the timing, volume, and mix of customer demand. Revised customer needs and sales input establish an important demand baseline, while finance contributes budgetary and profitability constraints. However, a planned price reduction, campaign, product launch promotion, or channel-specific offer may create a predictable demand surge that is not fully reflected in those baseline forecasts. Incorporating the promotion calendar enables the manufacturer to translate expected incremental demand into a feasible production plan, including required capacity, labor, materials, inventory positioning, and supplier commitments. This is a core cross-functional planning activity: marketing communicates demand-shaping actions, and operations uses that information to synchronize supply with the anticipated market response. Timely visibility is particularly valuable for the remainder-of-year plan because production and procurement lead times may limit the organization's ability to react once a promotion has begun. The resulting plan is more likely to support product availability during promotional periods while avoiding unnecessary inventory after demand returns to normal levels. ISM's supply management competency framework emphasizes integrating demand, supply, and organizational information in planning decisions. See [ISM's overview of sales and operations planning](#) and [IBM's supply-chain-planning overview](#).

QUESTION NO: 16

GHI, Inc. is a U.S.-based company with an expanding product line. GHI widens its sourcing of components to global suppliers, including suppliers in countries which are not included in trading blocs or bilateral agreements with the United States. Compliance with which of the following will MOST likely reduce GHI's administrative burden of cargo inspections on materials imported from these sources?

- A. United Nations Convention on Contracts for the International Sale of Goods (CISG)
- B. Foreign Corrupt Practices Act (FCPA)
- C. Global Environmental Management Initiative (GEMI)
- D. Customs-Trade Partnership Against Terrorism (C-TPAT)

ANSWER: D

Explanation:

Customs-Trade Partnership Against Terrorism (C-TPAT) is correct because it is a voluntary U.S. Customs and Border Protection (CBP) public-private partnership designed to strengthen international supply-chain security. Rather than depending on a supplier country's membership in a trade bloc or a bilateral trade agreement, C-TPAT focuses on the importer's and its business partners' security practices across the supply chain. A participating importer assesses relevant security risks, implements documented security measures, and works with suppliers and other partners to maintain appropriate safeguards.

CBP identifies reduced CBP examinations as a primary C-TPAT benefit. By recognizing validated partners as lower-risk participants, CBP can target its inspection resources more effectively, which may reduce the frequency of cargo examinations and associated clearance delays. This directly addresses the company's administrative burden for imported materials sourced globally, including from countries without preferential trade arrangements with the United States. The program is therefore relevant to operational import security and customs processing, not merely to the commercial terms of a purchase or the product's country of origin. CBP's program overview and benefits are available at [CBP C-TPAT](#) and [CBP C-TPAT Benefits](#).

QUESTION NO: 17

Which of the following buying strategies refers to planning inbound material purchases and flows without the need for significant inventory levels?

- A. Buying to requirements
- B. Forward buying
- C. Spot buying
- D. Hedging

ANSWER: A

Explanation:

Buying to requirements is the strategy of scheduling and purchasing materials in quantities and at times that correspond closely to the organization's actual production or operational requirements. Rather than acquiring material well in advance and holding substantial stock, supply management coordinates inbound deliveries with the requirements plan, including demand, lead times, and consumption schedules. This approach is consistent with just-in-time thinking: inventory is treated as a resource that should be available when needed while unnecessary carrying, storage, handling, obsolescence, and capital costs are minimized. Effective buying to requirements depends on reliable demand information, accurate planning data, capable suppliers, and appropriate replenishment lead times. It therefore supports a responsive flow of materials while avoiding the need for significant inventory buffers. The Association for Supply Chain Management describes just-in-time as a philosophy focused on providing the right items at the right time and in the right quantity; buying to requirements applies that principle directly to purchasing and inbound-material planning. See the [ASCM CPIM glossary](#) and ISM's overview of [just-in-time inventory management](#).

QUESTION NO: 18

Which of the following will be MOST useful for measuring service quality?

- A. Invoice procedures
- B. Fitness for purpose
- C. Warranty response
- D. Accurate documentation

ANSWER: B

Explanation:

Fitness for purpose is the most useful measure because service quality is ultimately determined by whether the service accomplishes the customer's intended need in its actual operating context. Unlike a product, a service is often experienced while it is being delivered, so an effective quality measure must focus on the outcome received by the user: whether the service is suitable, reliable enough for the stated requirement, and capable of delivering the expected value. In supply management, this means translating stakeholder requirements into measurable service expectations, then assessing whether the supplier's delivered service enables the required business result. "Fitness for purpose" provides that overarching, customer-centered standard and can incorporate relevant service attributes such as availability, responsiveness, competence, timeliness, and performance against agreed requirements. ISO's quality-management vocabulary defines quality in terms of the degree to which inherent characteristics fulfill requirements, which supports assessing a service against its intended purpose and customer requirements. This approach also aligns with quality-management principles emphasizing customer focus and the consistent fulfillment of requirements. See the [ISO 9000 quality-management vocabulary](#) and ISO's overview of [quality management](#).

QUESTION NO: 19

An ERP purchasing module indicates a gross requirement of 100 units for part number A123. There is an open purchase order for 55 units. The item master for this supplier shows an order lot size of 30 units each. In this situation, how many units of this part will the exception report indicate should be ordered?

- A. 60
- B. 100
- C. 45
- D. 30

ANSWER: A

Explanation:

60 is correct because material-requirements planning first nets available scheduled supply against the gross requirement. The open purchase order supplies 55 units toward the requirement of 100 units, leaving a net requirement of 45 units. The system must then apply the item's defined fixed order-lot quantity. Since orders can be placed only in multiples of 30 units, one lot would provide only 30 units and would not cover the 45-unit shortage. The planned replenishment quantity therefore rounds up to two lots: $2 \times 30 = 60$ units. This order quantity covers the entire net requirement and creates a projected excess of 15 units, which remains available for a future requirement. Exception messages and planned-order recommendations produced by an ERP or MRP process are based on this netting and lot-sizing logic; they do not recommend an order quantity that leaves a known shortage unresolved. Oracle describes MRP's use of supply, demand, and item planning attributes in its [Material Requirements Planning overview](#). The general purpose of lot sizing in converting requirements into feasible replenishment quantities is also described in the [SAP Integrated Business Planning](#) materials.

QUESTION NO: 20

A supply manager is reviewing safety stock for a particular unit. The unit is small, inexpensive, non-perishable, and easily stored, but is critical to the firm's manufacturing process. The following information is known about this unit:

Maximum lead time = 8 Days

Average lead time = 3 Days

Maximum daily usage = 6,000 Units

Average daily usage = 4,000 Units

What is the maximum safety stock that should be maintained for this unit?

- A. 12,000
- B. 10,000
- C. 36,000

D. 48,000

ANSWER: C

Explanation:

36,000 is the maximum safety-stock quantity because it covers the full potential demand exposure created by both demand variability and lead-time variability. Under the maximum-usage/maximum-lead-time method, safety stock is calculated as maximum demand during the maximum replenishment lead time less expected demand during the average lead time. Maximum exposure is 6,000 units per day multiplied by 8 days, or 48,000 units. Expected consumption is 4,000 units per day multiplied by 3 days, or 12,000 units. The difference is 36,000 units.

This approach is particularly appropriate for a component that is critical to manufacturing and is inexpensive, nonperishable, and easy to store. Holding this buffer helps prevent a production interruption if supplier delivery takes longer than normal while usage is higher than normal. The quantity is a protective reserve, separate from the inventory needed to cover expected demand during the normal lead-time period. For background on safety stock as inventory held to protect against variability, see [AccountingTools: Safety Stock](#) and [Investopedia: Safety Stock](#).