Free Questions for CPIM-Part-2

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Question 1

Question Type: MultipleChoice

Once an organization's monthly sales and operations planning (S&0OP) process has been completed, the functional responsibility of operations is to:

Options:

A- change the master schedule to meet the sales orders.

B- signal critical capacity constraints to top management.

C- meet the revised production plan.

D- produce to the current master production schedule (MPS).

Answer:

C

Explanation:

The sales and operations planning (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. Once the S&OP process has been completed, the executive S&OP meeting approves the final production plan, which is the output of the supply planning step. The production plan is a statement of the resources needed to meet the aggregate demand plan over a medium-term horizon. The functional responsibility of operations is to meet the revised production plan by developing and executing the master production schedule (MPS) and the detailed schedules. The MPS is a statement of the specific end items to be produced in each time period of the short-term horizon. The detailed schedules are the statements of the specific materials, resources, and activities needed to execute the MPS.Reference: CPIM Exam Content Manual Version 7.0, Domain 4: Plan and Manage Supply, Section 4.1: Develop Supply Plans, Subsection 4.1.2: Describe how to develop a production plan (page 36).

Question 2

Question Type: MultipleChoice

An important benefit of an effective work cell layout is:

Options:

A- reduced maintenance.

B- improved space utilization.

C increased machine utilization.

D- increased changeover efficiency.

Answer:

B

Explanation:

A work cell layout is a type of process layout that arranges equipment and workers according to the sequence of operations performed on a product or service. A work cell layout can improve space utilization by reducing the amount of floor space needed for production, eliminating unnecessary material handling and storage, and increasing the flexibility of the layout. A work cell layout can also reduce cycle time, improve quality, and enhance worker motivation.Reference: CPIM Exam Content Manual Version 7.0, Domain 6: Plan, Manage, and Execute Detailed Schedules, Section 6.2: Implement Detailed Schedules, Subsection 6.2.3: Describe the principles of work center design and layout (page 58).

Question 3

Question Type: MultipleChoice

Which of the following circumstances would cause a move from acceptance sampling to 100% inspection?

Options:

A- History shows that the quality level has been stable from lot to lot.

B- The company uses one of its qualified suppliers.

C- Downstream operators encounter recurring defects.

D- The percent of defects is expected to be greater than 5%.

Answer:

C

Explanation:

A move from acceptance sampling to 100% inspection would be caused by the circumstance of downstream operators encountering recurring defects. Acceptance sampling is a quality control technique that uses statistical sampling to determine whether to accept or reject a production lot of material.It is employed when one or several of the following hold: testing is destructive; the cost of 100% inspection is very high; and 100% inspection takes too long1. 100% inspection is a quality control technique that examines every item in a production lot for defects or nonconformities.It is employed when the cost of passing a defective item is very high; testing is nondestructive; and 100% inspection does not take too long2.

Downstream operators are the workers or machines that perform the subsequent operations or processes on the products after they have been inspected or tested. Downstream operators encountering recurring defects means that the products that have passed the acceptance sampling or testing are still found to be defective or nonconforming by the downstream operators. This can indicate that the acceptance sampling or testing is not effective or reliable in detecting or preventing defects or nonconformities. This can also result in

negative consequences, such as rework, waste, delays, customer complaints, or safety issues. Therefore, this circumstance would cause a move from acceptance sampling to 100% inspection, as it would require a more thorough and rigorous quality control technique to ensure that no defective or nonconforming products are passed to the downstream operators.

The other options are not circumstances that would cause a move from acceptance sampling to 100% inspection. History shows that the quality level has been stable from lot to lot is not a circumstance that would cause a move from acceptance sampling to 100% inspection, but rather a circumstance that would support the use of acceptance sampling. Quality level is the proportion of conforming items in a production lot. Quality level being stable from lot to lot means that there is little variation or fluctuation in the quality of the products over time. This can indicate that the production process is under control and consistent in meeting the quality standards or specifications. Therefore, this circumstance would support the use of acceptance sampling, as it would reduce the risk of accepting a defective lot or rejecting a conforming lot.

The company uses one of its qualified suppliers is not a circumstance that would cause a move from acceptance sampling to 100% inspection, but rather a circumstance that would support the use of acceptance sampling. A qualified supplier is a supplier that has met certain quality, delivery, and service standards and has been approved by the company to supply goods or services without inspection or testing. A qualified supplier is expected to maintain a high level of performance and reliability, as well as to report any issues or deviations that may affect the delivery process. Therefore, this circumstance would support the use of acceptance sampling, as it would reduce the need for 100% inspection by relying on the supplier's quality assurance system.

The percent of defects is expected to be greater than 5% is not a circumstance that would cause a move from acceptance sampling to 100% inspection, but rather a circumstance that would require a change in the acceptance sampling plan. The percent of defects is the proportion of defective items in a production lot. The percent of defects being expected to be greater than 5% means that there is a high probability of finding defective items in the production lot. This can indicate that the production process is out of control or inconsistent in meeting the quality standards or specifications. Therefore, this circumstance would require a change in the acceptance sampling plan, such as reducing the acceptable quality limit (AQL), increasing the sample size, or decreasing the acceptance number, to increase the likelihood of rejecting a defective lot.

Question 4

Question Type: MultipleChoice

Which of the following activities represents waste in a system?

Options:

A- More kanbans with smaller quantities are added to the supply chain.

B- A kanban is eliminated from the system.

C- A production forecast is issued to the supplier.

D- A purchase order is issued to the supplier for each delivery requirement.

Answer:

D

Explanation:

A purchase order is issued to the supplier for each delivery requirement is an activity that represents waste in a system. Waste is any activity or process that does not add value to the customer or the product, but consumes resources, time, or money. Waste can reduce the efficiency, productivity, and quality of the system, as well as increase the costs, defects, or delays.Waste can be classified into seven types: overproduction, inventory, transportation, motion, waiting, overprocessing, and defects1.

Issuing a purchase order to the supplier for each delivery requirement is an example of overprocessing waste. Overprocessing waste is any activity or process that is unnecessary or excessive for meeting the customer needs or specifications. Overprocessing waste can result from poor communication, unclear requirements, redundant tasks, or outdated procedures. Issuing a purchase order to the supplier for each delivery requirement is an overprocessing waste because it involves more paperwork, approvals, and transactions than needed. It can also create confusion, errors, or delays in the delivery process.A better way to eliminate this waste is to use a pull system, such as kanban2, that signals the supplier to deliver only when there is a demand from the customer.

The other options are not activities that represent waste in a system. More kanbans with smaller quantities are added to the supply chain is an activity that reduces waste in a system. Kanban is a pull system that uses visual signals, such as cards or containers, to indicate when and how much to produce or deliver.Kanban can help reduce waste by synchronizing the production and delivery processes with the customer demand, minimizing inventory levels, improving quality and efficiency, and preventing overproduction or underproduction3. Adding more kanbans with smaller quantities can help reduce inventory waste by lowering the holding costs, transportation costs, or obsolescence costs of inventory. It can also help reduce overproduction waste by producing or delivering only what is needed by the customer.

A kanban is eliminated from the system is an activity that reduces waste in a system. Eliminating a kanban from the system means reducing the number of signals or containers used in the production or delivery process.Eliminating a kanban from the system can help reduce waste by increasing the throughput and velocity of the process, reducing cycle times and lead times, improving responsiveness and flexibility, and enhancing customer satisfaction4.

A production forecast is issued to the supplier is not an activity that represents waste in a system. A production forecast is an estimate of the future demand or sales of a product or service. A production forecast can help plan and manage the production and delivery

processes by determining how much and when to produce or deliver.A production forecast can help reduce waste by optimizing the use of resources and capacity, minimizing inventory levels and costs, improving service levels and quality, and avoiding stockouts or shortages5. Issuing a production forecast to the supplier can help align the production and delivery processes with the customer demand and expectations.

Question 5

Question Type: MultipleChoice

Which of the following represents landed costs?

Options:

A- Combining smaller shipments to take advantage of bulk efficiencies

B- Purchasing and delivering a purchased product to its final destination

C- Supplier absorbing freight charges

D- Duties levied on imports and exports

Answer:

B

Explanation:

Landed cost represents the total cost of a product on its journey from the factory floor to the buyer's door.It includes the price of goods, shipment costs, insurance fees, customs duties, and any other charges incurred along the way1. Therefore, purchasing and delivering a purchased product to its final destination is the best representation of landed cost among the given options.

Combining smaller shipments to take advantage of bulk efficiencies is not a representation of landed cost, but rather a strategy to reduce it. Bulk efficiencies are the benefits or savings that result from purchasing or shipping large quantities of goods at once, such as lower unit prices, transportation costs, or handling fees.Combining smaller shipments to take advantage of bulk efficiencies can help lower the landed cost by reducing some of the charges involved in the delivery process2.

Supplier absorbing freight charges is not a representation of landed cost, but rather a condition or term of sale. Freight charges are the fees paid to transport goods from one place to another by land, sea, or air. Supplier absorbing freight charges means that the supplier pays for the freight charges and does not pass them on to the buyer. This can affect the landed cost depending on whether the sale is based on free on board (FOB) or cost, insurance, and freight (CIF) terms. FOB means that the buyer is responsible for the freight charges and other costs after the goods are loaded on board the carrier at the point of origin.CIF means that the supplier is responsible for the freight charges and other costs until the goods reach the point of destination3.

Duties levied on imports and exports are not a representation of landed cost, but rather a component or factor of it. Duties are taxes or fees imposed by a government on goods that are imported or exported across its borders. Duties can affect the landed cost by increasing the price of goods or adding extra charges to the delivery process.Duties can vary depending on the type, value, origin, or destination of the goods4.

Question 6

Question Type: MultipleChoice

The cost accountant has discovered a consistent overage in actual run time for one operation. This information should be sent first to the:

Options:

A- product manager to increase the selling price of the product.

B- quality manager to add a new quality measurement to the operation.

C- production supervisor to review and explain the overage.

D- the engineering manager to evaluate the run time for the routing.

Answer:

D

Explanation:

The information about the consistent overage in actual run time for one operation should be sent first to the engineering manager to evaluate the run time for the routing. A routing is a document that specifies the sequence of operations and work centers required to

produce a product or feature. A run time is the amount of time needed to perform an operation or a task at a work center. An overage in actual run time means that the actual time spent on an operation or a task is more than the planned or standard time. This can result in lower efficiency, productivity, or quality, as well as higher costs, waste, or delays.

The engineering manager is responsible for designing and maintaining the routing and the run time for each operation or task. The engineering manager can evaluate the run time for the routing by comparing the actual and planned times, identifying the causes of the overage, and taking corrective actions. For example, the engineering manager may:

Review the accuracy and validity of the planned or standard time, and update it if necessary.

Analyze the performance and capability of the machines, equipment, or labor involved in the operation or task, and improve them if needed.

Investigate the presence of any errors, defects, rework, or variability in the operation or task, and eliminate them if possible.

Implement lean production techniques, such as value stream mapping, waste reduction, or continuous improvement, to optimize the operation or task.

The other options are not appropriate for sending the information about the consistent overage in actual run time for one operation first. The product manager is not responsible for designing or maintaining the routing or the run time for each operation or task. The product manager is responsible for managing and marketing the product or feature, such as defining its specifications, features, price, or promotion. Increasing the selling price of the product is not a solution for addressing the overage in actual run time, as it may reduce customer demand or satisfaction, as well as increase competition. The quality manager is not responsible for designing or maintaining the routing or the run time for each operation or task. The quality manager is responsible for ensuring and improving the quality of the product or feature, such as setting quality standards, implementing quality control methods, or conducting quality audits. Adding a new quality measurement to the operation is not a solution for addressing the overage in actual run time, as it may increase complexity or cost without improving efficiency or productivity. The production supervisor is not responsible for designing or maintaining the routing or

the run time for each operation or task. The production supervisor is responsible for overseeing and coordinating the production activities at a work center, such as scheduling operations, assigning resources, monitoring performance, or resolving issues. Reviewing and explaining the overage in actual run time is not a solution for addressing it, as it does not identify or eliminate its causes.

Question 7

Question Type: MultipleChoice

Which of the following outcomes is a benefit of mixed-model scheduling?

Options:

A- Increased inventory

B- Improved demand response

C- Fewer setups

D- Fewer material shortages

Answer:

B

Explanation:

Mixed-model scheduling is a production technique that allows for the simultaneous production of different products or features on the same production line or system. Mixed-model scheduling can help reduce lead times, inventory levels, setup times, and material shortages by increasing the flexibility and responsiveness of the production process. One of the benefits of mixed-model scheduling is improved demand response, which means the ability to meet customer demand without delay or stockout. Improved demand response can enhance customer satisfaction and loyalty, as well as reduce the need for safety stock or buffer inventory. By using mixed-model scheduling, a company can produce products or features according to the actual or forecasted customer demand, rather than producing large batches of standardized products or features. This can help avoid overproduction or underproduction, which can result in excess inventory or lost sales. Mixed-model scheduling can also help adjust the production output quickly and easily when there are changes or fluctuations in demand, by using flexible automation, lean production techniques, or quick response methods.

The other options are not benefits of mixed-model scheduling. Increased inventory is not a benefit of mixed-model scheduling, but rather a drawback. Increased inventory can increase inventory costs, such as holding costs, transportation costs, or obsolescence costs. It can also reduce inventory visibility and control, as well as increase the risk of quality issues or spoilage. Mixed-model scheduling can help reduce inventory by producing products or features in small batches or single units that match customer demand. Fewer setups are not a benefit of mixed-model scheduling, but rather a requirement. Fewer setups mean less time and resources spent on changing or adjusting the production system to produce different products or features. Fewer setups can increase the efficiency and productivity of the production process, as well as reduce the setup costs and waste. Mixed-model scheduling requires fewer setups to enable the simultaneous production of different products or features on the same production line or system. Fewer material shortages are not a benefit of mixed-model scheduling, but rather an outcome. Fewer material shortages mean less disruption or delay in the production process due to the lack of materials or components needed for production. Fewer material shortages can improve the quality and reliability of the production process, as well as reduce the material costs and waste. Mixed-model scheduling can result in fewer material shortages by reducing the lead times and inventory levels of materials or components, as well as by improving the communication and coordination with suppliers.

Question 8

Question Type: MultipleChoice

The capacity requirements plan is used primarily to:

Options:

A- balance capacity and load at work centers.

B- calculate the level of available capacity.

C- determine the overall product load profile.

D- determine the priority of orders.

Answer:

A

Explanation:

The capacity requirements plan is used primarily to balance capacity and load at work centers. A work center is a location where one or more resources perform a specific operation or a group of operations. Capacity is the amount of time or output that a work center can offer for production activities. Load is the amount of time or output that a work center is required to produce based on the planned production schedule. Balancing capacity and load means matching the available capacity with the required load, so that there is no excess or shortage of capacity at any work center.

The capacity requirements plan is a report that shows the projected load and capacity of each work center over a planning horizon. It is derived from the master production schedule (MPS), which specifies the quantity and timing of finished goods to be produced, and the bill of materials (BOM), which specifies the components and materials needed for each finished good. The capacity requirements plan also uses the routing file, which specifies the sequence of operations and work centers required for each finished good, and the work center file, which specifies the capacity and availability of each work center. The capacity requirements plan can help to identify any gaps or surpluses in capacity at each work center and to take corrective actions, such as revising the MPS, rescheduling operations, adding or reducing resources, or outsourcing production.

The other options are not the primary uses of the capacity requirements plan. Calculating the level of available capacity is an input to the capacity requirements plan, not an output. The level of available capacity is determined by the work center file, which contains information such as shifts, hours, efficiency, utilization, and maintenance of each work center. Determining the overall product load profile is not a use of the capacity requirements plan, as it does not consider the product mix or demand variability. The overall product load profile is a general estimate of the total production volume or demand over a period of time. Determining the priority of orders is not a use of the capacity requirements plan, as it does not consider the due dates or urgency of orders. The priority of orders is determined by using priority rules or dispatching methods, such as first-come-first-served (FCFS), shortest processing time (SPT), earliest due date (EDD), or critical ratio (CR).

Question 9

Question Type: MultipleChoice

The results from responding to uncertainty in the supply chain by exaggerating lead times and increasing lot sizes is called:

Options:

A- bullwhip effect.

B- supply and demand.

C- process train.

D- forward integration.

Answer:

A

Explanation:

The results from responding to uncertainty in the supply chain by exaggerating lead times and increasing lot sizes is called the bullwhip effect. The bullwhip effect is a phenomenon that occurs when small changes in demand at the downstream end of the supply chain (such as retailers or customers) cause larger and larger fluctuations in demand at the upstream end of the supply chain (such as

wholesalers, distributors, or manufacturers). The bullwhip effect can create inefficiencies, waste, and costs in the supply chain, as well as reduce customer satisfaction and profitability.

One of the causes of the bullwhip effect is the response to uncertainty in the supply chain by exaggerating lead times and increasing lot sizes. Lead time is the time between placing an order and receiving it from a supplier. Lot size is the quantity of units ordered or produced at a time. When there is uncertainty or variability in demand or supply, such as due to seasonality, promotions, disruptions, or forecasting errors, some supply chain members may try to cope by exaggerating lead times and increasing lot sizes. For example, a retailer may increase its safety stock or reorder point to avoid stockouts or delays, or a manufacturer may produce more than needed to take advantage of economies of scale or discounts. However, these actions can have unintended consequences, as they can distort the demand information and amplify the demand variability along the supply chain. This can result in excess inventory, low inventory turnover, high holding costs, poor service levels, lost sales, obsolete products, or capacity issues.

To prevent or reduce the bullwhip effect caused by responding to uncertainty in the supply chain by exaggerating lead times and increasing lot sizes, some possible solutions are:

Improving communication and collaboration among supply chain members to share accurate and timely demand information and forecasts.

Reducing lead times and lot sizes by using lean production techniques, just-in-time inventory systems, or quick response methods.

Implementing vendor-managed inventory (VMI) systems, where suppliers are responsible for managing and replenishing the inventory of their customers based on their actual consumption data.

Adopting advanced technologies, such as radio-frequency identification (RFID), artificial intelligence (AI), or blockchain, to enhance visibility, traceability, and coordination in the supply chain.