Question 1

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"?

Options:

A- 10 hours

B- 12 hours

C- 13 hours

D- 30 hours

Answer:

B

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 2

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

Options:

A- end product backlog.

B- finished goods inventory.

C- key intermediate part inventory.

D- raw material inventory.

Answer:

C

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 3

Question Type: **MultipleChoice**

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?

Options:

A- Produce to backorders

B- Produce at a constant level

C- Produce to the sales forecast

D- Produce to demand

Answer:

A

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 4

Question Type: **MultipleChoice**

The most relevant measure of customer service performance is:

Options:

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.

Answer:

A

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 5

Question Type: **MultipleChoice**

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

Options:

A- unit cost.

B- total landed cost.

C- lead times.

D- lot sizes.

Answer:

B

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 6

Question Type: **MultipleChoice**

Rivalry among competing sellers is generally weaker when:

Options:

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.

Answer:

A

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.