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Mini-Case - Read the following narrative carefully:

You work for a company called Barb's Bikes. Barb's Bikes is a small company that purchases high-end bicycle parts (i.e. frames, wheels, tires, peddles), assembles these parts into bikes and then sells these bikes to small, high-end regional retailers. Barb's Bikes has recently implemented an ERP system really helped streamline operations and has dramatically reduced the chaos and associated costs they encountered when the used to run separate order processing, inventory, manufacturing and procurement systems.

Before the ERP system was implements, managing inventory was a nightmare! What the sales people were selling never seemed to be in stock and what we had in stock was never what the sales people were selling. The sales people were not communicating with the production people and the production people were not communicating with the procurement people. It was a mess! The new ERP system solved most of these problems by generating better forecasts, managing the production plan and acquiring the parts we need when we need them to make the bikes to meet demand.

Using historical sales data and information about marketing campaigns that we are currently running, the system generates a forecast of what we expect to sell week by week over the next quarter. The system then compares this sale forecast against the finished goods that we will have in stock week by week over the next quarter. Note that this is not what we currently have in stock what we will have in stock by referencing the current production plan showing what bikes we will be building week by week over the next quarter.

If the supply is not expected to meet demand, then the system will automatically update the production plan scheduling so that we will make the additional bikes we will need to meet demand.

When the production plan is updated, the system checks the inventory levels of the raw materials (i.e. frames, wheels, tires, etc.) to ensure that we have the raw materials needed to execute the production plan. The system has information about all of our suppliers including what we can purchase from them, how much they charge for each item and how long it takes to receive a shipment from the supplier, also known as "lead time". If we don't have the needed raw materials the system reviews the suppliers of the needed raw materials and selects the supplier that can get us the needed raw materials at the lowest cost in time to assemble the bikes we need to execute the production plan. The system sends out purchase orders to these suppliers who ship the raw materials.

The production plan is executed like clockwork. Every day the production team receives raw materials and then assembles the bikes as specified by the production plan. All of the necessary raw materials are delivered by the lowest cost supplier shortly before the bikes are assembled. As the production team finishes the assembly of a bike, they store it in the warehouse and then update inventory. The entire process starts all over again the next week.

-------- *Based on the narrative provide the best answer to the following questions about the swimlane and ERD diagrams:*

1. What would be the best name for the actor labeled "A"?
    a. ERP
    b. Warehouse
    c. Procurement
    d. Production Team
    e. None of the above

2. For the box labeled "B", what would be the most appropriate description of this step in the process?
    a. Check with Accounting Department for Available Credit
    b. Compare Forecast to Future Finished Goods Inventory
    c. Compare Forecast to Production Plan
    d. In stock?
    e. None of the above

3. For the diamond labeled "C" what would be the most appropriate description of this step in the process?
    a. Production Plan Updated
    b. Create Purchase Requisitions
    c. Customer Notified of Delivery Date?
    d. Assembly Scheduled?
    e. None of the above

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4. For the box labeled “D” what would be the most appropriate description of this step in the process?
    a. Select Optimal Vendor Based on Cost and Delivery Times
    b. Production Plan Updated
    c. Create Purchase Requisition
    d. Acquire Approval for Purchases
    e. None of the above

5. For the box labeled “E” what would be the most appropriate description of this step in the process?
    a. Pick, Pack and Ship Order
    b. Update Production Plan
    c. Update Inventory
    d. Compare Forecast to Future Finished Goods Inventory
    e. None of the above

6. For the entity labeled “F”, what would be the most appropriate name for this entity?
    a. Purchase Order
    b. Bill
    c. Invoice
    d. Purchase Requisition
    e. None of the above

7. For the entity labeled “G”, what would be the most appropriate name for this entity?
    a. Items to Purchase
    b. Material Location
    c. Inventory Forecast
    d. Production Plan Request
    e. None of the above

8. For the relationship labeled “H”, what would be the most appropriate name for this entity?
    a. Invoices
    b. Creates PO
    c. Pays For
    d. Provides
    e. None of the above

9. For the relationship labeled “I”, what would be the most appropriate name for this entity?
    a. Does Include
    b. Is Compared To
    c. Does Not Include
    d. Ordered By
    e. None of the above

10. What of the following attributes is missing from the Supplier entity?
    a. Lead Time
    b. Purchase Order Number
    c. Invoice Number
    d. Quantity
    e. None of the above

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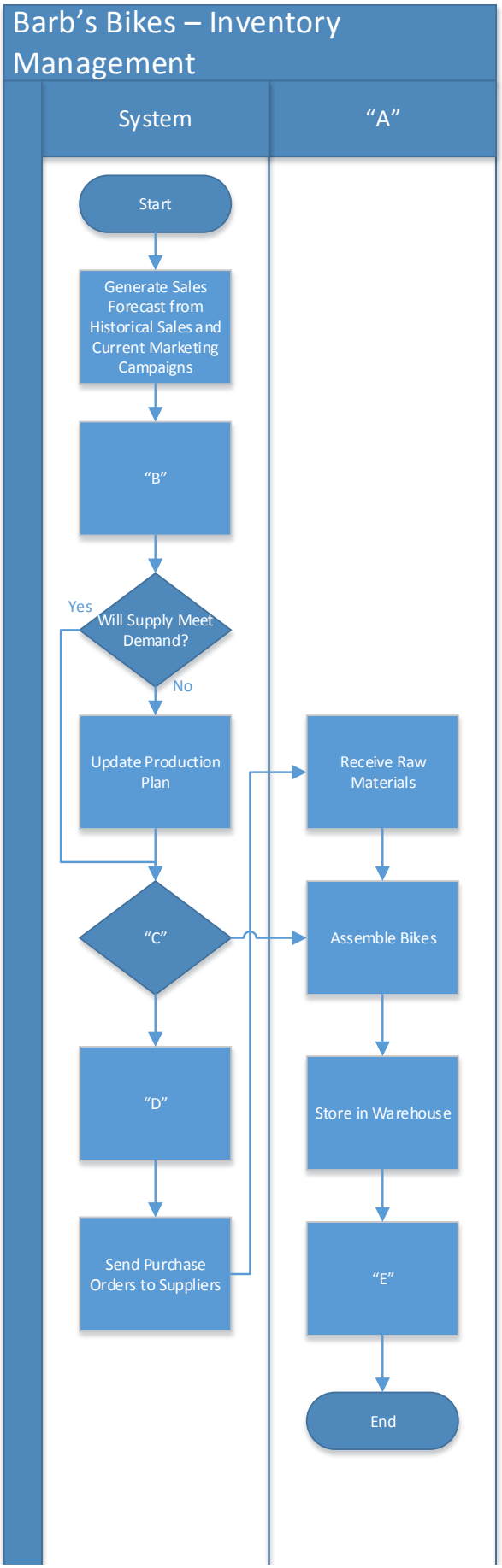

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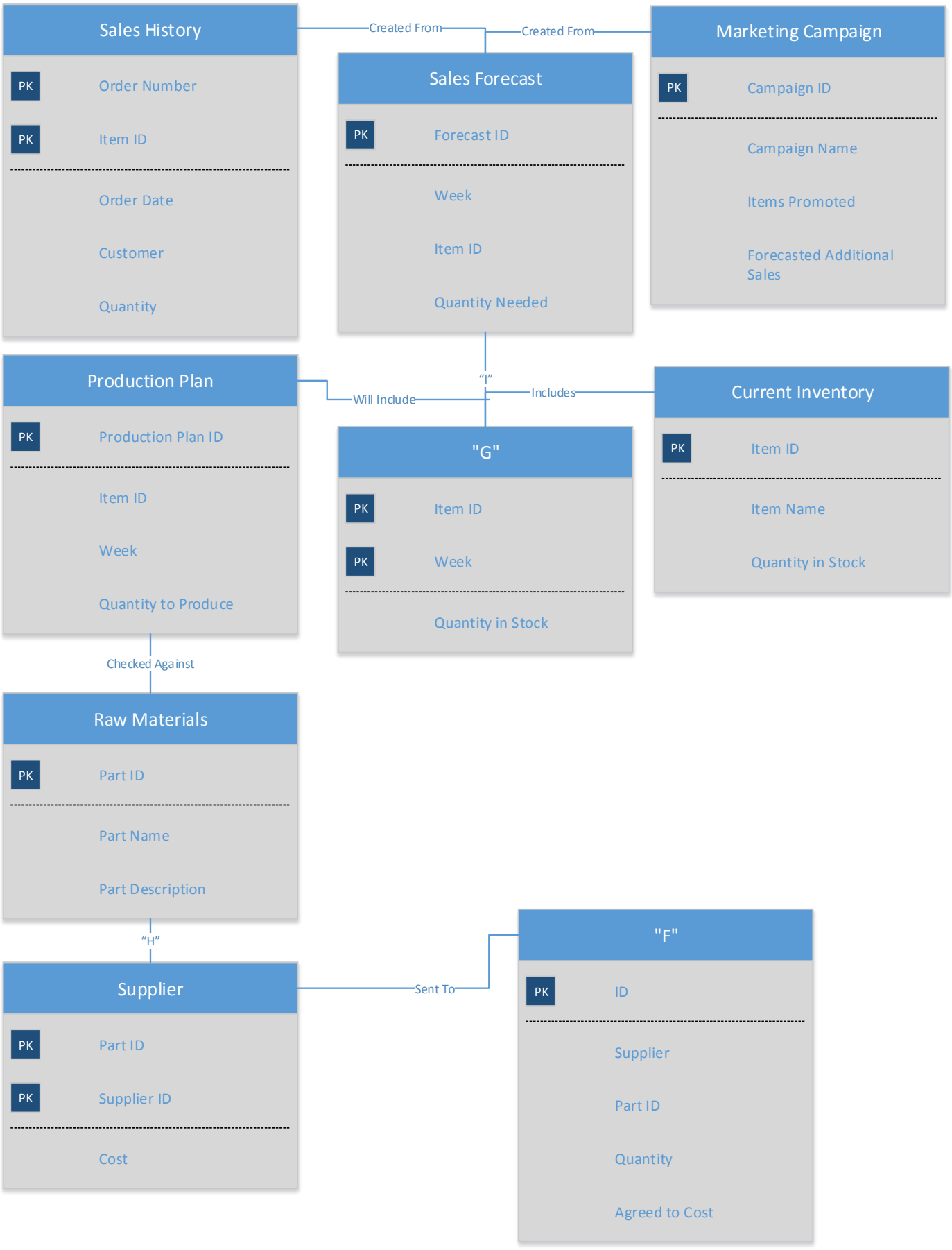

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Answer Key:

1. D
2. B
3. E – Should be Have Raw Materials to Execute Production Plan
4. A
5. C
6. A
7. C
8. D
9. B
10. A