SNS COLLEGE OF TECHNOLOGY

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COIMBATORE-641 035, TAMIL NADU

QUESTION BANK

23BAE745: SUPPLY CHAIN ANALYTICS

UNIT I: DESCRIPTIVE ANALYTICS IN SUPPLY CHAIN MANAGEMENT

Short Answer Questions (2 Marks Each)

1. **Define supply chain analysis and its significance in modern business.**
   Supply chain analysis involves the evaluation and optimization of all the processes involved in the flow of goods and services from suppliers to customers. It is significant as it helps businesses reduce costs, improve efficiency, and enhance customer satisfaction.
2. **List the different types of supply chains commonly found in industry.**
   The different types of supply chains include push supply chains, pull supply chains, hybrid supply chains, agile supply chains, and lean supply chains.
3. **Explain the concept of advanced planning in supply chain management.**
   Advanced planning in supply chain management refers to the use of sophisticated tools and techniques to forecast demand, optimize inventory levels, and coordinate the production and distribution processes. It aims to enhance the efficiency and responsiveness of the supply chain.
4. **Identify the key components of a data-driven decision-making process.**
   The key components include data collection, data analysis, decision-making based on insights, and continuous monitoring and feedback.
5. **Describe the role of descriptive analytics in supply chain management.**
   Descriptive analytics involves analyzing historical data to understand patterns and trends in supply chain performance. It helps in making informed decisions by providing insights into past activities.
6. **Differentiate between push and pull supply chain models.**
   In a push supply chain, products are manufactured based on forecasted demand and pushed to the market. In a pull supply chain, production is driven by actual customer demand, leading to more responsive and flexible operations.
7. **State the importance of data accuracy in supply chain analysis.**
   Data accuracy is crucial as it ensures reliable insights, supports effective decision-making, and prevents errors in forecasting, inventory management, and other supply chain operations.
8. **Outline the steps involved in implementing descriptive analytics in a supply chain.**
   Steps include defining objectives, collecting relevant data, cleaning and preprocessing data, analyzing the data using descriptive techniques, and interpreting the results for decision-making.

9. **Give examples of how descriptive analytics can improve inventory management.**
   Descriptive analytics can help identify patterns in inventory levels, optimize reorder points, and reduce excess stock by analyzing past demand trends.
10. **Explain the impact of supply chain analysis on customer satisfaction.**
    Supply chain analysis improves customer satisfaction by ensuring timely delivery, reducing stockouts, and enhancing product availability through efficient inventory and demand management.
11. **Identify the challenges faced in integrating data-driven decision-making in supply chains.**
    Challenges include data silos, lack of data quality, resistance to change, the complexity of integrating new technologies, and the need for skilled personnel.
12. **Define the term "bullwhip effect" and its relevance to supply chain management.**
    The bullwhip effect refers to the amplification of demand variability as it moves up the supply chain, causing inefficiencies. It is relevant as it highlights the need for accurate demand forecasting and coordination across the supply chain.
13. **List the types of data commonly used in supply chain analysis.**
    Types of data include sales data, inventory levels, supplier performance data, transportation data, and customer demand data.
14. **Explain how advanced planning can mitigate risks in supply chains.**
    Advanced planning helps mitigate risks by enabling proactive decision-making, optimizing inventory levels, improving demand forecasting, and allowing for better coordination across the supply chain.
15. **Describe the role of historical data in descriptive analytics.**
    Historical data is crucial in descriptive analytics as it provides the basis for identifying trends, patterns, and anomalies in supply chain performance, which can inform future decisions.
16. **State the benefits of using descriptive analytics in demand forecasting.**
    Benefits include more accurate predictions of customer demand, improved inventory management, reduced stockouts, and better alignment of production with market needs.
17. **Outline the differences between tactical and strategic supply chain planning.**
    Tactical planning focuses on short-term decisions, such as inventory management and production scheduling, while strategic planning involves long-term decisions like network design and supplier relationships.
18. **Identify the key metrics used in supply chain performance analysis.**
    Key metrics include order fulfillment rate, inventory turnover, lead time, cost per order, and on-time delivery performance.
19. **Explain the concept of demand variability and its effect on supply chains.**
    Demand variability refers to fluctuations in customer demand over time. It affects supply chains by creating challenges in inventory management, production scheduling, and maintaining service levels.
20. **Describe how supply chain analysis contributes to cost reduction.**
    Supply chain analysis helps identify inefficiencies, optimize processes, and reduce waste, leading to lower operational costs and improved profitability.

Long Answer Questions (16 Marks Each)

1. **Analyze** the importance of descriptive analytics in supply chain management and **discuss** how it enhances decision-making processes.
2. **Evaluate** the role of advanced planning in supply chain management and **propose** strategies for its effective implementation.
3. **Compare** and **contrast** different types of supply chains, focusing on their advantages and disadvantages in various industries.
4. **Discuss** the significance of data-driven decision-making in supply chain management and **assess** its impact on overall business performance.
5. **Examine** the challenges associated with implementing descriptive analytics in supply chains and **recommend** solutions to overcome these challenges.
6. **Interpret** the data obtained from descriptive analytics in supply chain management and **suggest** actionable strategies for improving operational efficiency.
7. **Assess** the impact of supply chain analysis on customer satisfaction and **propose** methods to enhance this relationship.
8. **Design** a framework for integrating advanced planning and descriptive analytics in a global supply chain, considering potential risks and opportunities.
9. **Explore** the role of historical data in supply chain analysis and **explain** how it can be used to forecast future trends and improve decision-making.
10. **Critique** the effectiveness of different supply chain models in managing demand variability and **suggest** improvements to enhance supply chain resilience.