



ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF LAW, BUSINESS INTELLIGENCE AND ECONOMICS

DEPARTMENT OF ECONOMICS, MARKETING AND ENTREPRENEURSHIP

EXAMINATION PAPER

MODULE CODE : CBM 414  
MODULE TITLE : PRODUCTION AND OPERATIONS  
MANAGEMENT  
DURATION : 3 Hours  
LEVEL : 4.1  
DATE : 11 JUN 2025

**INSTRUCTIONS TO CANDIDATES:**

1. No cell phones are allowed in the examination venue.
2. Use of silent, non-programmable calculators is allowed
3. Answer question number **one (1)** in Section A (Compulsory) and any other **three (3)** questions in Section B.
4. Begin each question on a new page.
5. The number of marks for each question or part question is shown in brackets [ ]
6. Show all workings, where applicable.

## SECTION A

### Question 1: Optimizing Supply Chain Management

In 2023, DEF Electronics, a global supplier of consumer electronics, faced significant disruptions in their supply chain due to geopolitical tensions and natural disasters. These disruptions led to delays in production and increased costs. To mitigate these risks, the company decided to optimize their supply chain management. They began by conducting a risk assessment to identify vulnerable areas in their supply chain. The assessment revealed that reliance on a few key suppliers and lack of visibility into the supply chain were major risks.

The management team implemented a multi-sourcing strategy to reduce dependency on single suppliers. They identified and qualified additional suppliers in different regions to ensure a more resilient supply chain. Additionally, they invested in supply chain visibility tools, such as real-time tracking and advanced analytics, to monitor the movement of goods and identify potential disruptions early. These tools provided valuable insights into supplier performance and helped the company make data-driven decisions.

To further enhance supply chain resilience, DEF Electronics adopted a collaborative approach with their suppliers. They established long-term partnerships and shared information on demand forecasts and production schedules. This collaboration enabled better planning and coordination, reducing the risk of stockouts and overproduction. The company also implemented inventory optimization techniques, such as safety stock and reorder point calculations, to ensure optimal inventory levels.

The impact of these initiatives was closely monitored using key performance indicators (KPIs) such as lead time, order fulfillment rate, and supply chain costs. The data showed a significant improvement in supply chain performance, with a 20% reduction in lead time and a 15% increase in order fulfillment rate. Supply chain costs also decreased by 10%, indicating more efficient operations. The company was able to respond more effectively to disruptions and maintain a steady flow of goods.

By the end of the year, DEF Electronics had successfully optimized their supply chain management. The company reported a 25% increase in overall supply chain efficiency and a 20% improvement in customer satisfaction. The success of these initiatives highlighted the importance of supply chain resilience and collaboration with suppliers. DEF Electronics continued to invest in supply chain innovations to stay competitive in the market and ensure a reliable supply of goods.

- a) What were the main risks identified in DEF Electronics' supply chain?  
[2 marks]
- b) Describe the multi-sourcing strategy implemented by the management team and its benefits.  
[3 marks]
- c) Calculate the percentage reduction in lead time if the initial lead time was 10 days and it was reduced by 20%.  
[4 marks]
- d) What supply chain visibility tools were used to monitor the movement of goods and identify potential disruptions?  
[4 marks]
- e) How did inventory optimization techniques contribute to better inventory management at DEF Electronics?  
[6 marks]

- f) Discuss the importance of supply chain resilience and collaboration with suppliers in achieving operational excellence. [6 marks]

## SECTION B

### Essay Questions

#### QUESTION TWO

Using practical examples of a well-known manufacturing enterprise in Zimbabwe, evaluate how operations management adds value to products. [25 marks]

#### QUESTION THREE

- a) Forecasting involves planning and predicting the uncertain future, and it must be done with care. Explain three characteristics that make forecasting accurate and dependable. [10 marks]
- b) A company in the service industry provided the following data about complaints received from customers over a period:

Period	Number of Complaints
1	70
2	75
3	65
4	68
5	74

From the provided data, prepare forecasted number of complaints for the company in period 6 using the following forecasting approaches:

- i) Naive Approach [3 marks]  
ii) Three period moving average [5 marks]  
iii) Exponential Smoothing with a smoothing constant of 0.30. [7 marks]

#### QUESTION FOUR

"In this era of rapid transformation, manufacturing enterprises must acknowledge the significant changes taking place and leverage digital technology in their production and operations." Evaluate this statement in the context of Industrie 4.0

**QUESTION FIVE**

- a) "Quality can be subjective, much like beauty which is in the eye of the beholder." Refuting this notion, analyze three key dimensions from which quality can be objectively defined. [10 marks]
- b) "Both failing to produce quality products and ensuring the production of quality products can be costly." Discuss three types of costs associated with both not producing and producing quality products. [15 marks]

**---ASANTENI---**

**[END OF PAPER]**