



**TECHNICAL UNIVERSITY OF MOMBASA**  
***Faculty of Business & Social Studies***

DEPARTMENT OF BUSINESS STUDIES

UNIVERSITY EXAMINATIONS FOR  
MASTER OF BUSINESS ADMINISTRATION  
(MANAGEMENT SCIENCE OPTION)

**BMS 5201: OPERATIONS MANAGEMENT**

END OF SEMESTER EXAMINATIONS

**SERIES:** APRIL 2015

**TIME:** 3 HOURS

**INSTRUCTIONS:**

- Answer question **ONE (Compulsory)** and any other **THREE** questions
- Do not write on the question paper.

***This paper consists of Four printed pages***

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**QUESTION 1 (Compulsory)**

**KALANDO FOOD PROCESSING COMPANY**

KALANDO, a massive Mombasa based subsidiary of KOKA KOLA, has 38 plants with 48,000 employees in Kenya. Seven of Kalando's 41 brands exceed Kshs. 1 billion in sales. They are Kalandos, Laya, Rugers, Osocho, Ticko, Daraja and Otieno Chips. Operations is the focus of the firm-from designing products for new markets, to meeting changing consumer preferences, to adjusting to rising commodity costs to subtle issues involving flavours and preservatives. OM is under constant time, cost, quality and market pressure. Here is a look at how the 10 decisions of OM are applied at this food processor.

In the food industry product development kitchens experiment with new products, submit them to focus groups and perform test marketing. Once the product specifications have been set, processes capable of meeting those specifications, and the necessary quality begins at the firm, with onsite inspection of the potatoes used in Rugers and corn used in Kalandos. Quality continues throughout the manufacturing process, with visual inspections and with statistical control of product variables such as oil, moistures, seasoning, salt, thickness and weight. Additionally, quality evaluations are conducted through out shipment, receipt, production, packaging and delivery.

The production process at KALANDO is designed for large volumes and small variety, using expensive special-purpose equipment, and with swift movement of material through out the facility. Product focused facility(s) such as KALANDO's, typically have high capital costs, tight schedules, and rapid processing. KALANDO's facilities are located regionally to aid in the rapid delivery of products because freshness is a critical issue. Sanitary issues and necessarily fast processing of products puts a premium on efficient layout. Production lines are designed for balanced throughput and high utilization. Cross-trained workers who handle a variety of production lines, have promotion paths identified for their particular skill set. The company rewards employees with medical, retirement and educational plans. Its turnover is very low.

The supply chain is integral to success in the food industry, vendors must be chosen with greater care, more over, the finished food product is highly dependent on perishable raw materials. Consequently, the supply chain brings raw materials. (potatoes, maize etc) to the plant securely and rapidly to meet tight production schedules. For instance, from the time that potatoes are picked in Taita Taveta until they are unloaded in Mombasa, processed, packaged and shipped from the plant is under 12 hours. The requirement for fresh product requires on-time, just-in-time deliveries, combined with both low raw materials and finished goods inventory.

The continuous flow nature of the specialized equipment in the production process permits little work-in-process inventory. The plants usually runs 24/7. This means that there are four shifts of employees each week.

Tight scheduling to ensure the proper mix of fresh finished goods on automated equipment requires reliable systems and effective maintenance. KALANDO's workforce is trained to recognize problems early, and professional maintenance personnel are available on every shift. Downtime is very costly and can lead to late deliveries, making maintenance a priority.

In light of the above, answer the following questions:

- a) From your knowledge of production processes and from the ease, identify how each of the **TEN** decisions of operations management is applied at KALANDO. **(20 marks)**
- b) How would you determine the productivity of production processes at KALANDO. **(10 marks)**

- c) How are the **TEN** decisions of operations management applied differently to a service-oriented organization such as the Technical University of Mombasa. **(10 marks)**

## **QUESTION 2**

- a) What is operations management? Explain some of the current issues that impact on operations management function in organizations. **(8 marks)**
- b) What is operations strategy? Discuss the key competitive dimensions that characterize an operations strategy. **(12 marks)**

## **QUESTION 3**

- a) How is project quality related to the triple-constraint that constitutes generic project objectives. **(6 marks)**
- b) Using the “Fishbone” cause and effect diagram, diagnose issues that are affecting a company that you are familiar with. **(14 marks)**

## **QUESTION 4**

Write short notes on the following:

- a) Shingo fail safe Design
- b) Third Party Logistics (3PLs)
- c) Design For Manufacturing & Assembly (DFMA)
- d) Poke Yoke
- e) Order Winners and Order Qualifiers. **(20 marks)**

## QUESTION 5

- a) The following represents a project's activities. Draw the network diagram and determine the project's duration and the critical path. **(12 marks)**

Activity	Preceding Activity	Duration (days)
A	-	4
B	A	7
C	A	5
D	A	6
E	B	2
F	C	3
G	E	5
H	B, F	11
I	G, H	7
J	C	4
K	D	3
L	I, J, K	4

- b) Using an appropriate diagram, explain how to structure a project using the matrix structure and explain the advantage of using a matrix. **(8 marks)**