

The
Management
University
of Africa



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DIPLOMA UNIVERSITY EXAMINATIONS

SCHOOL OF MANAGEMENT AND LEADERSHIP

DIPLOMA IN MANAGEMENT AND LEADERSHIP

DML 104 : INTRODUCTION TO OPERATION MANAGEMENT

DATE: 28TH MARCH 2022

DURATION: 2 HOURS

MAXIMUM MARKS: 70

INSTRUCTIONS:

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **FOUR** questions.
6. Question **ONE** carries **30 MARKS** and the rest carry **10 MARKS** each.
7. Write all your answers in the Examination answer booklet provided.

QUESTION ONE

Read the Case Study below carefully and answer the questions that follow:

CAPACITY MANAGEMENT

Henry Mwenza is the operations manager at Tujenge Plastic Tanks Manufacturing Company. As the operations manager, he is responsible for job and tasks assignment at the plant as well as determining reorder levels of the raw materials. He has the responsibility of ensuring that goods produced meet the quality as well as quantity set by the company. He also makes sure that the resources are put to the optimal use and the quality of the products is maintained. Recently, when the COVID-19 hand wash control measures were announced, the company decided to decrease the price of their hand wash dispenser tanks by a significant amount and they also focused on promotions.

As a result, there was a sudden surge in the demand for those dispenser tanks. Almost everyone wanted to buy them as a compliant measure and because of their affordability after the price change. The management communicated to its manufacturing plant that they needed at least an increase of 25% in the daily production level of the tanks at the plant. They knew that good capacity management was key in ensuring that an increase in demand led to an ability to attain the set objectives i.e., retain their customers, satisfy their needs, remain competitive, grow the market share as well as make huge profits from the projected sales. However, these benefits were only achievable if, they succeeded in meeting the increase in demand.

Henry's boss, John called for a meeting to be briefed on the update. However, Henry informed him that they lacked enough raw materials in store for production and so they could not meet the demand he added that after placing an order with their supplier, he had informed him that the earliest time he was able to supply was after 90days.

Required,

- a) Define the term capacity in operations management (1mark)

- b) List four responsibilities of an operations manager as highlighted in the case study. (4marks)
- c) From the case study outline any four advantages of good capacity management in a firm (8marks)
- d) The new product development is not a single decision but a process entailing many phases of decision making. Demonstrate the six common steps in the new product development cycle (12marks)
- e) Propose any four short term methods that a firm may use to increase capacity with an aim of handling unexpected shift in demand. (5marks)

QUESTION TWO.

- a) Define Total Quality Management (TQM) (2marks)
- b) Highlight four advantages of a product layout (4marks)
- c) Management has a wide range of decision options for aggregate planning. Mention any four strategies for meeting uneven demand (4marks)

QUESTION THREE.

- a.) List five elements of Total Quality Management (5marks)
- b.) Explain five assumptions of a Linear Programming model (5marks)

QUESTION FOUR.

- a.) Highlight three advantages and three disadvantages of specialization to employees in a firm (6marks)
- b.) Distinguish between forward scheduling and backward scheduling (4marks)

QUESTION FIVE.

- a) Professor Karabu is a faculty member at the Leadership University. Due to the higher numbers of students, he hires Jane and John to grade papers for his class. Jane is a graduate and can grade 30 papers per hour and she is paid Ksh250 per hour. John is a post graduate associate who grades 60 papers per hour and earns Ksh400 per hour. The professor hires them one hour a week to manage the pile up. If Prof Karabu has at least 150 papers to be graded each

week, how many hours per week should he hire each person to minimize the cost. Determine the critical points and represent them using the graphical linear programming method. **(6marks)**

b) List four objectives of product and service design. **(4marks)**

QUESTION SIX.

a) The production department of a company X requires 5600kgs of raw materials for manufacturing a certain item per year. The estimated cost of placing an order is Ks36, and the carrying cost is 24% of investment in inventories. The unit price of the raw materials is Ks 10 per Kg. Determine

i. The Economic Order Quantity **(2marks)**

ii. Find the optima orders in a year **(2marks)**

b) Identify two advantages of time-based compensation system in job designs.

(2marks)

c) Evaluate four factors that determine the success of high-volume systems in scheduling

(4marks)