



TECHNICAL UNIVERSITY OF MOMBASA
Faculty of Business & Social Studies

DEPARTMENT OF BUSINESS STUDIES

UNIVERSITY EXAMINATIONS FOR
MASTER OF SCIENCE (PROCUREMENT & SCM)
MASTERS OF BUSINESS ADMINISTRATION
(MANAGEMENT SCIENCE OPTION)

BPC 5103: SUPPLY CHAIN 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

QUESTION 1 (Case study)

INVENTORY REDUCTION BY SUPPLY CHAIN RE-ENGINEERING AT ASIAN PAINTS

With the industry business becoming more complex, most companies have restructured. They have aligned their organizational structure on the basis of expanding business and its complexities. At Asian Paints this was essential in order to tighten inventory controls and simultaneously achieve customer satisfaction.

Colour dispensing machines, both computerized and manual have transformed the business, particularly on the manufacturing and distribution sides. Earlier, Paint companies were required to manufacture all

the shades (30-50 depending on a particular product line) in all the packs (5-8 packs). The result was a drastic reduction in plant-level finished goods inventory.

The demand pattern was difficult to predict even with the support of historical data/trends, as consumer preferences were changing fast. The machines altered the production pattern to producing bases thus providing economics of scale, reduced inventory levels and eliminated the redundancy of stocks. Production pattern has cut down the new products introduction cycle considerably. This has helped expand the range of sha.. to consumers in the hundreds. For the retailers, dispensing machines eliminated the sales loss for want of range desired/desired range. The machines have brought a total change in the way business is transacted and revolutionized business processes as well.

With the strategy of postponement of finished goods making at the demand point rather than at the manufacturing plant, Asian Paint reduced its finished goods variety and volumes at plant level.

In light of the above, attempt the following questions:

- a) The major aim of the supply chain re-engineering at Asian Paints was to reduce the inventory levels. Clearly argue the case for and against holding inventory, and advice the management of Asian Paints appropriately. **(10 marks)**
- b) With clearly explained examples, explain how information technology can be used in managing inventory at Asian Paints. **(10 marks)**
- c) What challenges do you think the management of Asian Paints would face in implementing information technology in inventory management? **(10 marks)**
- d) According to the case, the demand pattern was difficult to predict even with the support of historical data. Explicitly explain to the management of Asian Paints any **FOUR** qualitative demand forecasting methods that they can use in predicting demand. **(10 marks)**

QUESTION 2

The approximate monthly closing prices (in shs. per share) for Wamalwa enterprises for December 2000 through November 2001 are as shown below:

Month, year	Price (Kshs.)
December 2000	40
January 2001	38
February 2001	39
March 2001	41
April 2001	36
May 2001	41
June 2001	34

July 2001	37
August 2001	35
September 2001	37
October 2001	40
November 2001	41

Required:

- a) Using the exponential smoothing technique with $\alpha = 0.4$, determine the shares price for the month of December 2001. **(8 marks)**
- b) Compare the results above, with those obtained using the method of least squares, and give reasons why the exponential smoothing technique has recently become highly acceptable. **(12 marks)**

QUESTION 3

A particular item has a demand of 18,000 items per year. The cost of one procurement is shs. 2,000 and the holding cost per unit per year is 48 shillings. The replenishment is instantaneous and no shortages are allowed. Assuming a 365 day's year, determine

- a) The economic lot size
- b) The number of orders per year
- c) The time between orders
- d) The total cost per year if the cost of one unit is shs. 20. **(20 marks)**

QUESTION 4

- a) Global supply chains are exposed to similar risks as those faced by domestic supply chains, as well as other risks that are more global in nature. Clearly discuss any **FOUR** of such risks faced by global supply chains. **(8 marks)**
- b) Clearly explain the role of a distribution in supply chain management. **(6 marks)**
- c) Giving practical examples, explain the following distribution network designs:
 - i) Manufacturers storage with direct shipping. **(3 marks)**
 - ii) Manufacturer storage with direct shopping and in-transit merge. **(3 marks)**

QUESTION 5

- a) Effective sourcing processes within a firm can improve profits for the firm and the total supply chain surplus in a variety of ways. Explain the benefits derived from making effective sourcing decisions. **(10 marks)**
- b) With clear examples, differentiate between supply chain management and logistics management, and discuss any **THREE** types of supply chains. **(10 marks)**